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PSYCHIATRIC SENSE AND NONSENSE

C. C. BURLINGAME, M.D.
Hartford, Conn.

These past years, especially the war years, have been significant in bringing psychiatric facts and fancies to the fore. After a century of ostracism, psychiatry has found itself accepted almost over night in the home, in industry, in the schools and in the community. Actually, it has come to be quite the fashion to have a psychoneurosis!

In spite of this sudden rise to fame and fortune, psychiatrists might do well to examine themselves carefully to make sure that they are headed in the right direction. As chairman of the Committee on Public Education of the American Psychiatric Association and as president and psychiatrist in chief of a psychiatric hospital, I constantly receive communications expressing views on psychiatric matters from individuals and groups in my own country and abroad. These spontaneous remarks encompass most of the prevailing views on psychiatric developments, from which one can hazard a fairly good forecast of probable things to come.

There are many favorable indications that great progress has been made, but I am also convinced that, in spite of surface indications, psychiatry is not necessarily assured of smooth going from now on. Rather, there are matters not entirely desirable which call for serious, immediate attention.

Paradoxically enough, the matters which are not entirely desirable may be related to the popularity which has come to psychiatry so suddenly and unexpectedly. There is real danger in letting this sudden rise to fame and fortune "go to one's head"!

Psychiatry was born out of the jails and almshouses and probably had a more ignoble birth than the other branches of medicine. Subsequently, the struggle to establish psychiatry as a scientific practice related to the rest of medicine has met with more obstacles than has that of the more prosaic, less dramatic specialties such as cardiology, pediatrics or dermatology. In the not too distant past the psychiatric institution was separated from the life of the community. The psychiatrist was little more than a keeper of the keys who, if he did emerge from his walled abode, was looked on as some one who spoke a language different from others and spoke of things unrelated to society outside of the asylum.

Yet in the face of public rebuffs and an almost complete lack of monetary support, a relatively small group of psychiatrists and other earnest people have worked untiringly to learn more about mental illnesses. They have struggled to provide better care for psychiatric patients and to place psychiatry on a scientific medical basis.

It has been a hard struggle and a long one. Now, with the spotlight on psychiatry, the temptation is great to rush to the center of the stage; and this is the time that psychiatrists must avoid overplaying their part and, incidentally, suffering the consequences.

I am sure that all will concur when I say that it is psychiatric nonsense to claim that present day psychiatry contains the cure for all the mental ills to which the human flesh is heir. It is psychiatric nonsense to claim that if psychiatry only had a chance a vast majority of psychiatric breakdowns could be prevented.

In answer to the sudden and flattering demands on psychiatric services, one might better become increasingly realistic and answer the question: "What is actually known of preventive psychiatry in the sense that the rest of the members of the medical profession, as well as the laity, use the term preventive medicine?" Largely through preventive medicine, the span of life in America has been lengthened 20 years within a single generation. What does psychiatry have to offer today that is at all comparable to that?

It is true that the psychiatrist has many impressions about what is good for the mental health of the human being. It is true that he entertains many hunches about what will alleviate psychiatric illnesses, which comprise the greatest of all public health problems. However, it is also true that, with comparatively few exceptions, he does not know the cause of so-called mental diseases. Most diagnostic terms are only descriptive of conditions and do not yet represent disease entities in the same sense that pneumonia, typhoid fever and similar diagnostic terms represent disease entities.

For example, what is manic-depressive psychosis? What is its cause and how can it be prevented? What is dementia precox? What is its cause and how can it be prevented? I doubt if the endless papers describing these conditions are getting at the fine point of establishing disease entities, and the establishment of disease entities must antedate any truly scientific exploration into the causes and prevention of mental diseases.

It is only during the past fifty years that the great scientific discoveries have been made in psychiatry, and all in all science is a plodding, painstaking process which must be accepted if psychiatry is to be established on an enduring basis.

There is the matter of the forms of treatment. Therapeutically, psychiatry has made great advances since I first entered the field thirty-eight years ago. I have seen fads of all kinds come and go. I have

Read at the Primer Congreso Medico-Social Panamericano at Havana, Cuba, Dec. 6, 1946.
From the Institute of Living, the Neuropsychiatric Institute of the Hartford Retreat (president and psychiatrist in chief).

seen the intestines removed and thrown away. I have lived through this era and that era of enthusiasm about one form of therapy or another form of therapy, and I have seen them discarded.

Consider the present day shock therapy. Only a stupid person would decry shock therapy as an instrument in helping the mentally ill, but nevertheless one should not condone the use of shock therapy for everything from an ingrowing toenail to baldness. The seemingly miraculous results obtained in the presence of shock therapy should not cause one to lose the wits with which one was born or the knowledge one has acquired in the past thirty or forty years. To proceed as if shock therapy, any more than any other psychiatric technic, can usurp the place of all other therapies is psychiatric nonsense.

Also, lobotomies or leukotomies are coming forward. Because of their grave danger and high demands on the resources at the command of the psychiatrist, they probably are destined never to be a runaway; but again, to assume that the surgical procedure of the lobotomy replaces the usefulness of all other therapeutic technics and amassed psychiatric knowledge would be psychiatric nonsense.

Psychiatrists talk at great length about psychotherapy, which may convey a great deal to their own initiated group, but in the minds of the general public the term is more or less mixed up with metaphysics and the occult.

It is my own personal belief that psychotherapy, regardless of the form it assumes (and it does assume many forms), is essentially personal tutoring. Further, I believe that sound physical medicine and psychotherapy in the form of personal tutoring occupy the front ranks in the help which may be offered to the mentally ill. Other therapies are important adjuncts, but psychotherapy, in the form of personal tutoring, and sound physical medicine are a reliable basis for all present day psychiatric treatment aimed at restoring psychiatric patients to society.

A patient can be taken into a psychiatric institution and his psychiatric disorder can be alleviated by protecting him from the sin and suffering in the outside world and applying any one or several of other psychiatric treatments. But unless that patient is better equipped, when he leaves the institution, to cope with his problems outside the institution, treatment has been a failure. Nine times in ten the factors in his breakdown were concerned with his inability to cope with life as it exists outside the institution, and the defects within persons which make them unable to cope with life are as varied as human nature itself.

If a patient is ever to fulfil his destiny as a member of society, he must be trained to develop and to use his mental and physical resources in the world as it exists outside the mental hospital. If he is able merely to adapt himself to life inside the mental hospital, treatment has been unsuccessful. Psychiatric patients must be examined from the point of view of the human mind and the human body and must be put in the best possible condition to meet life. In a word—they must be reeducated for living.

In past years the psychiatrist has expended great kindness on the patients in mental hospitals, but let past procedures be examined to see if, with all this kindness, he has not expended all too little intelligence.

I urge a period of self analysis to see if the procedures used have not in a large measure been a desocializing influence, tending to train patients away from the methods and practices of society outside of institutions.

For example, how many patients have been making baskets, weaving rugs and polishing the floors in the hospital? How many of those same patients will make baskets, weave rugs or polish floors in their communities if the psychiatrist succeeds in sending them home?

To the extent that patients are exposed to any procedures foreign to their lives outside of the hospital, one may be guilty of doubtful practice. Indeed, in some instances it might well be asked if one is not unconsciously institutionalizing the patients; and institutionalizing the patients is extremely easy, even while one is all kindly feelings and charitable intent. But is this good treatment?

Psychotherapy in the form of personal tutoring is education in its broadest sense and has evolved in the United States into a technic known as reeducational therapy, with decidedly practical applications to normal living.

Of what does this reeducation consist? To answer that question, I am going to consider man's psychologic life under four practical headings: (1) his vocational life; (2) his avocational life; (3) his social and recreational life, and (4) his physical self.

Vocation.—First of all, man has a need to be of some use to others. He has a psychologic need to feel reasonably justified for taking up space on the good earth. The housewife who keeps a good home, the secretary who serves her employer, the truck driver, the electrician, the doctor—each is fulfilling a useful and responsible place in society. This is the vocational aspect of life.

Avocation.—The concept of avocations is that they are "secondary vocations." Most persons are not fortunate enough to do for a living that at which they would like to play, so they must have avocations or hobbies to satisfy their urge to be usefully interested in life. Avocations are those things which man does by himself as a hobby.

Social and Recreational.—Third, man is a social animal with a need to play and enjoy the lighter side of life. He needs to do things with other people. He needs their company and he needs to know how to get along with them.

Physical.—Of course, man must be physically well and physically fit. He must have good habits of taking care of the human body, which is the vehicle of his mind. It has often been said that a healthy body is necessary for a healthy mind.

To recapitulate, a human being sits psychologically on a four-legged chair. One leg of that chair is his vocation; another leg is his avocation; the third leg of that chair is the social and recreational leg, and the fourth is his physical self. If his chair has four solid legs, he is destined to sit comfortably and securely throughout life. If one leg is too short, or missing, he may well find a reasonable amount of security in his particular chair of life. If two of the legs are defective, he will probably be uncomfortable; and some people seem to have all four legs of different lengths, or some entirely absent, which leaves them precariously balanced, with the result that they fall.

For the moment I shall put aside theoretic thinking in the field of psychiatry, dispense with wishful thinking and get down to the known facts. Let psychiatrists

make sure that these facts are used as the basis for the things which are still in doubt.

I have already intimated that one must first learn the physical condition of every psychiatric patient. At the Institute of Living in Hartford, Conn., with which I have the honor to be associated, more than a thousand new patients were received in the past year. As a routine, every patient has a complete physical examination, roentgenograms of the head, the chest, the heart and the lungs. Every patient has an extensive examination of the eye, the ear, the nose and the throat, the blood and the body fluids, electroencephalograms, electrocardiograms and all the neurologic and other physiologic examinations and tests. To the extent of present day diagnostic methods, no effort is spared to determine the physical condition of the patient at the time he is received, regardless of what the so-called psychiatric diagnosis may be. In addition, every patient is routinely exposed to a battery of psychologic tests.

It is interesting to note that two thirds of all the patients admitted have some demonstrable physical irregularity. At times the connection between the physical irregularity and the mental condition is quite obvious, but in a large percentage of the cases the connection is a matter of present and future research.

It is interesting to note that among 1,000 cases, thorough examinations indicated 8 brain tumors, which diagnoses were confirmed on the operating table. The psychiatric diagnoses of these patients had been psychoneurosis, dementia precox, reactive depressions and manic-depressive psychosis.

The accumulation of thousands of careful physical examinations on thousands of mental patients provides a fruitful field for research in the future, but I shall resist the temptation to guess what these studies may reveal as to the causes of mental diseases and their possible treatment. I am sure that these studies of the human body and the human mind will eventually result in the cessation of talk about mental disease and physical disease as two separate things but will lead to the inclusion of both under the term, disease. During the thirty-eight years I have been in the field of psychiatry, I have come to the conclusion that there is no such thing as "mental" disease in the sense in which the term has been used for several generations.

If one has a carbuncle on the back of the neck, one will refer to it as a physical disease, but is one's psychologic side changed? Of course it is. Is the personality of the dyspeptic changed? Of course. The change is so well known that the distorted personality of the dyspeptic is a common subject in the funny papers. Is the personality of a patient with typhoid changed in the midst of his delirium? Of course it is. The most psychotic patient I have ever seen was in the delirium of typhoid fever.

When I entered the field of psychiatry, dementia paralytica or softening of the brain was accepted as a "mental" disease. Then I had the pleasure of looking at the original slides in which the spirochete of syphilis was discovered in the cortex of the brain of a patient with dementia paralytica, revealing that this entity is syphilis of the brain. Is that a mental disease, or is it a physical disease?

There is a large group of patients with involutional melancholia. It is now known that in involutional melancholia there is an endocrine imbalance, the correction of which is the most immediate feature in the cure. Is involutional melancholia a mental disease or a physical disease?

I have seen dementia precox occurring in patients with pellagra. With the cure of pellagra, the dementia precox disappeared. Was that a mental disease or a physical disease? I have seen dementia precox in army patients who had long had malaria. With the cure of the malaria, the dementia precox disappeared. Was that a mental disease, or was it a physical disease?

Think of man as a whole. Think of his physical and mental incapacities as diseases, not separately as physical diseases or mental diseases. I fully believe that any other type of thinking will be referred to in the future as pure psychiatric nonsense.

However, there is a long gap between present day knowledge and the knowledge of a decade hence. Within that period, there are patients to be treated.

I doubt if merely talking with a patient, using so-called psychotherapy regarding hidden experiences which occurred to him at 2 or 3 years of age, is a practical solution to the problems of the hundreds of thousands of psychiatric patients. More is known about the course of the so-called mental diseases than about their causes. Happily, more is known about what can be done for so-called mental disease than about the exact nature of the disease.

A person may be born with a curved spine or weak eyes. Physicians can examine his spine and do a great deal to strengthen it. What is more, that person can be taught to live a useful and successful life with that handicap. By study of a patient with weak eyes, the defect can sometimes be corrected with glasses and that person can be taught to be a useful member of society. It is also true that one can study psychiatric patients as to their vocational past and their vocational possibilities and train them along vocational lines, so that they can live successfully in line with their vocational capacities and limitations. One can study their avocational past and their avocational possibilities and help them to develop these potentialities. One can study their social and recreational past and train them along these lines to enable them to live successfully according to their capabilities in a social and recreational way. And one can certainly study their physical selves and aid in their development so that they can live according to their physical capabilities. These things can be done; if one does them, it makes psychiatric sense and not psychiatric nonsense.

If psychiatrists will aid in the development of their patients vocationally and avocationally, socially, recreationally and physically, theirs will be a practical approach to the cure of psychiatric disabilities. If that is used as a basis for the attack on psychiatric diseases, one may have a clear conscience if one wishes to add any of the purely theoretic approaches. On the other hand, the psychiatrist is failing in his responsibility if he neglects proven facts and follows exclusively any of those schools of psychiatric thought which are based primarily on hypotheses.

There is no such thing as a scientific psychiatric approach which does not have a solid demonstrable fact as its point of departure. Theories and hypotheses are stimuli for research, but theories and hypotheses based on other theories and other hypotheses are not scientific facts. If the psychiatrist is lost in a morass of theory, there is great danger that his ideas of scientific advances will drift into the sphere of wishful thinking and fairy tales. A psychiatrist must first of all be a

good physician with a complete knowledge of the human body and must use his knowledge in treating his patients. Second, he must be a bit of a sociologist who is a constant student of the milieu in which his patient has lived and must live in the future. Third, he must be a psychologist who understands the workings of the human mind. Fourth, he must be a specialized type of educator and fifth, he must be a vocational guidance expert. Any psychiatrist who does not fulfil all five of these intellectual disciplines is destined to fall short of his possibilities.

Most important of all, the psychiatrist must express himself in terms which can be understood by every medical practitioner, and psychiatry must be made an integral part of medicine. It does not take a great mind to make simple things complicated, but it takes a very great mind to make complicated things simple. Let psychiatrists, then, distinguish between psychiatric sense and psychiatric nonsense and bring simple, hard-headed sense into this field, which contains the greatest public health problem in the world today.

RHEUMATIC FEVER

Its Recognition and Treatment

GEORGE C. GRIFFITH, M.D.
Pasadena, Calif.

The importance of rheumatic fever is indicated by the fact that 2 per cent of the school children of the United States have heart disease as a result of the rheumatic state; that the cause of 98 per cent of all heart disease in patients under 20 years of age is rheumatic fever; that rheumatic fever causes more deaths in the first two decades of life than all of the communicable diseases plus pneumonia; that rheumatic fever causes annually ten times as many deaths as infantile paralysis, and that a study of the young men rejected for military service because of heart disease showed the rheumatic state to be the etiologic factor in 51 per cent in Boston, 70.3 per cent in Chicago, 64.4 per cent in New York, 65.9 per cent in Philadelphia and 39.6 per cent in San Francisco (White, Levy and Stroud [1]). Its importance is further emphasized by the recent knowledge that rheumatic fever is not a disease confined to the temperate zone but is almost as prevalent in subtropical climates as in the temperate zones (Sampson [2]) and that even the acute fulminating type of the disease is frequently seen in the tropics (Huntington [3]). The belief that the disease is confined to the temperate zone arises from the more frequent occurrence of the severe types in that zone. This important disease has now become a global problem.

Hereditary susceptibility to the disease, previously thought to be of a mendelian recessive character (Armstrong and Wheatley [4]) may be largely due to poor nutrition or to group crowding, as shown by the experience of the Army and Navy in training centers. Good nutrition and segregation may be a large factor in protecting the individual from an inciting agent such as the beta hemolytic streptococcus (Wilson [5]). It is true that children of parents who have had rheumatic fever are more susceptible to the development of the disease in the presence of an infection due to hemolytic streptococcus, i. e. tonsillitis, scarlet fever and otitis media, than are the children of nonrheumatic parents (Paul [6]).

Read in the General Scientific Meetings at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 2, 1946.

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DEFINITION

From the combined experience of the clinician, pathologist, bacteriologist, allergist, neuropsychiatrist and dermatologist working with this disease in a large group of patients of military age, a consensus has gradually developed that this disease entity is best characterized by the following definition: Rheumatic fever is a systemic poststreptococcic nonsuppurative inflammatory disease with protean manifestations of varying severity and duration. Pathologic, histologic and clinical observation shows that the disease is a hypersensitivity angiitis manifest in all of the bodily structures from the skin to the smallest subdivision of the viscera.

THE PHASES OF THE RHEUMATIC STATE

The first phase of the disease is that period of illness during which the patient is the host to the beta type of the hemolytic streptococcus. From military experience it has been learned that 5 per cent of trainees develop a suppurative hemolytic streptococcic infection in the upper portion of the respiratory tract. This infection may take the form of a pharyngitis, tonsillitis, otitis media or a sore throat with scarlatiniform rash, the so-called scarlet fever. In approximately 5 per cent of this group of patients the symptoms and signs of rheumatic fever develop. Therefore it is logical to consider every patient with a throat infection due to hemolytic streptococci, a potential rheumatic fever subject. In those susceptible persons in whom rheumatic fever develops it is proper to consider this the first phase of the disease.

The second phase is the period of latency which is from one to four weeks in duration. It is during this, the second phase of the disease, that the patient develops a hypersensitivity, is found to tire easily, may run a mild fever and have a persistent leukocytosis, elevated blood sedimentation rate and a gradual increase in the level of the antistreptolysin titer (Rantz [7]). This second phase is frequently observed only as an interval of time. The painstaking physician will find that the patient is not symptom free and is developing the rheumatic state.

The third phase is the well known period of rheumatic fever activity. The protean manifestations may be grouped into four distinct types, each of which with its symptom complex will be described in detail subsequently. The severity and duration of this phase of activity cannot be predicted, as the most fulminating onset may be followed by a relatively short period of activity, for example, from four to six months, while in the subclinical type activity may persist for years.

The fourth phase is the period of rheumatic fever inactivity. It is the period of the arrested rheumatic state, or the period of rheumatic quiescence. This phase of the disease may be long or short, depending

on reactivation of the rheumatic state. The mild pain occasioned by muscle jelling, articular stiffness and soreness resulting from fatigue or exposure do not constitute a reactivation of the rheumatic process. An infection of the upper respiratory tract followed by fever, tachycardia, malaise, dyspnea and migrating polyarthritis and concomitant laboratory observations of an increased blood sedimentation rate, leukocytosis and electrocardiographic changes constitute a reactivation. Of a large number of patients returned to a rheumatic fever unit for supposed reactivation, only 2.4 per cent were found to have a reactivation. Thus, the fourth phase of the disease begins with the termination of rheumatic fever activity and ends only if reactivation occurs.

ONSET OF THE RHEUMATIC STATE

The beginning of the active stage of rheumatic fever may be insidious and go unnoticed and undiagnosed for a long time, as shown by the survey of rejectees with cardiovascular disease (Levy, Stroud and White[1]). It was found that 71.2 per cent of patients in four cities and 50 per cent in two cities did not give a history of acute rheumatic fever. On the other hand, the onset of the rheumatic state may be severe. The younger the patient the more severe the onset appears to be the rule. The latency phase of the disease is ended by an acute illness characterized by migrating polyarthritis, fever, shortness of breath, tachycardia out of proportion to the rise in temperature, loss of appetite and severe sweats. The patient is restless but moves the extremities little because of painful joints. The face is flushed. The tongue and lips are dry. The skin is hot and dry, alternating with periods of drenching sweat. The migrating polyarthritis usually begins in the larger joints, such as the knees, ankles, elbows, wrists and at times the hip and shoulder joints. The periarticular tissues are swollen, hot and tender. As the process begins to subside in one joint, it often lights on a contralateral joint. The polyarthritis persists a relatively short time after the patient has been put to rest. The administration of salicylates sufficient to raise the blood level to 30 mg. per hundred cubic centimeters of blood relieves the polyarthritis promptly. Patients with sedentary duties do not develop the severe articular manifestations which characterize the physically active group.

The fever may be absent, moderate or severe. The severely elevated temperature persists for ten to eighteen days and then gradually subsides, or it may continue at a low lovel for months. The shortness of breath is usually overlooked. It is common in the acute stage and is the first sign of myocardial failure and/or rheumatic pneumonitis. The tachycardia is out of proportion to the degree of fever. Even though fever is absent, a tachycardia is usually present. The tachycardia persists as long as there is activity present.

During the acute onset, carditis is shown by dilatation and gallop rhythm; electrocardiographic changes may be present. Pericarditis as indicated by a to and fro friction rub or by an effusion is not frequently diagnosed. In a large series of patients it was diagnosed clinically in 2.82 per cent of cases. Endocarditis is diagnosed only with caution in the active phase when (1) the murmur is diastolic in time; (2) a systolic murmur persists through six months' observation; (3) the systolic murmur remains the same or grows worse in intensity and is heard in all positions and in all phases of respiration; (4) the systolic murmur is transmitted. These signs of carditis may be present early in the acute onset but most frequently are later manifestations.

Pneumonitis was found in 11.3 per cent[7a] of 1,046 patients with prolonged rheumatic fever. The symptoms of rheumatic pneumonitis in the order of their frequency are shortness of breath, tachycardia, fever, pleuritic pain, malaise and cough. The shortness of breath and tachycardia may precede the fever, pleurisy and cough by many hours to a few days. Physical observation shows small areas of dulness and diminished breath sounds anywhere in the pulmonary fields. Fine rales soon appear. The patchy areas of pneumonitis shift from one site to another. The upper lobes of the lungs are involved as frequently as are the lower lobes. A pleural effusion may appear rapidly. It disappears with equal rapidity unless congestive failure supervenes. Thoracentesis, like pericardial drainage, is seldom necessary. The roentgenologic observations of rheumatic pneumonitis are those of so-called primary atypical pneumonia. The pathologic histology is that of a pulmonary angiitis with multiple small infarctions.

Loss of weight and loss of appetite are common at the onset. The return of appetite and a gain in weight are good indexes that the rheumatic activity is subsiding.

Abdominal pain is due to localized peritoneal inflammation resulting from the angiitis in the parietal and visceral peritoneum. Confusion with acute appendicitis is not frequent. More frequent is its association with liver engorgement. In the acute onset of rheumatic fever abdominal pain is frequently due to diaphragmatic pleurisy or to peritoneal irritation. Usually the dyspnea, tachycardia, signs of pneumonitis or carditis and polyarthritis are out of proportion to the abdominal pain. If the abdominal pain localizes and the classic picture of acute appendicitis persists, then surgical intervention should be undertaken. The problem of acute appendicitis at the onset of acute rheumatic fever was not frequently encountered. Acute appendicitis during the prolonged period of convalescence did not exceed the expectancy in a similar age group of nonrheumatic fever patients.

Chorea at the onset of acute rheumatic fever is extremely infrequent in patients of military age. In only 0.04 per cent of rheumatic fever patients did chorea develop at any time during the period of observation.

At the onset of the disease erythemas are frequent. The erythemas are those of a hypersensitivity, varying from erythema marginatum to urticaria. Erythema multiforme and erythema nodosum are not specific manifestations of rheumatic fever activity.

Subcutaneous nodules are not frequently seen at the onset in patients of military age. Subcutaneous nodules when present indicate a severe rheumatic activity.

Epistaxis is common at the onset of the disease in children. In the age group from 18 to 25 years 0.3 per cent of patients show this phenomenon. However, in another study Montgomery[8] has shown that there is a definite increase in capillary permeability and fragility in persons in the rheumatic state.

Concomitant with the onset of the disease there is an increase in the leukocyte count and an elevation of the blood sedimentation rate and of the antistreptolysin titer. None of these observations are specific for the rheumatic state.

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THE CLINICAL TYPES OF RHEUMATIC FEVER

There are four clinical types of rheumatic fever recognizable, namely, the acute fulminating, the subacute polycyclic, the subacute monocyclic and the subclinical.

Acute Fulminating Type.—The acute fulminating type was found to occur at a rate of 4.3 per cent in a series of patients who showed evidence of rheumatic activity for more than six months. This type is frequent in childhood. The acute fulminating type is characterized by a sudden onset with migrating polyarthritis, fever, restlessness, severe tachycardia, dyspnea and drenching sweats. Carditis appears rapidly as shown by dilatation, gallop rhythm, murmurs and at times pericarditis. Pneumonitis is present in many patients. Pneumonitis can be detected by careful physical examination but is more frequently diagnosed by the roentgenologic studies of the lungs. The migrating polyarthritis is of short duration although usually severe at the onset. The temperature is relatively high, ranging from 101 to 103 F. The acute febrile period lasts from ten to eighteen days and then subsides with a rapid convalescence or goes into a prolonged low grade state of activity. The tachycardia is decided and is the last sign of activity to disappear. The leukocyte count is moderately elevated with a great increase in the granulocytes. The urine may contain albumin and a moderate number of cells. Approximately 20 per cent of patients in this group show electrocardiographic changes indicative of myocardial and pericardial involvement. The acute fulminating type of disease usually terminates with one cycle. This group represents those patients who are most susceptible to the disease. Although the mortality is low in the primary attack, this type is more liable to reactivation.

Subacute Polycyclic Type.—The subacute polycyclic type is similar to the acute fulminating type at the onset except that it is less severe. It occurs more frequently. The percentage of occurrence in this series of patients was 27.6 per cent. The cycles may be short and spaced at long intervals, or in the more severe subtypes the cycles may be long and spaced at shorter intervals of time. It is in this type of rheumatic fever that the mortality is the greatest. In this series of patients 63.6 per cent of the fatalities occurred in the subacute polycyclic type of the disease. Likewise in this group with repeated cycles of activity the most extensive cardiac enlargement and the most frequent signs of endocarditis and pericarditis are found. During one or all of the cycles pneumonitis of greater or less degree may occur. After the first cycle, polyarthritis is usually absent and the response to salicylate therapy is poor. Congestive heart failure complicating carditis occurs almost exclusively in this group of cases.

Subacute Monocyclic Type.—The subacute monocyclic type, the most frequently observed of the four types, occurred in this series in 61.3 per cent of the patients. The onset may be mild and scarcely recognizable, or it may be moderately severe with moderate fever, mild migrating pains, a definite tachycardia and moderate elevation of the leukocyte count and blood sedimentation rate. The response to salicylates is usually prompt, and the acute onset lasts for seven to fifteen days. Thereafter the course may be that of a rapid return to the stage of quiescence so that full duty may be resumed in from four to six months; or the course may be long with signs of mild activity persisting over a period of six to nine or more months.

Subclinical Type.—The subclinical type was found in 5 per cent of the cases. This group comprised those patients who may or may not have had an infection of the upper part of the respiratory tract and who in the course of a follow-up examination were found to have definite signs of rheumatic heart disease. Such signs are those of enlargement of the cardiac chambers, mitral and/or aortic insufficiency murmurs, paroxysmal tachycardias and auricular fibrillation. On careful observation this group of patients exhibited a few signs of rheumatic activity, such as a cyclic low grade temperature and a mildly increased sedimentation rate. At other times confirmatory evidence of rheumatic activity was not found. Two patients within this group died suddenly. Death in each instance was due to an acute angiitis with a collagenous change in the coronary arteries sufficient to cause an occlusion and myocardial infarction.

THE CRITERIA FOR THE DIAGNOSIS OF RHEUMATIC FEVER

The diagnostic criteria for rheumatic fever have been previously laid down by Swift [9] and Jones.[10] They are subdivided into major and minor groups: The major criteria are five in number, namely, a history of a previous attack, carditis, fever, migrating acute arthritis and chorea; the minor criteria in the order of their relative importance are pneumonitis, tachycardia, subcutaneous nodules, erythemas, epistaxis and purpura, loss of weight and abdominal pain.

MAJOR DIAGNOSTIC CRITERIA

A previous history of rheumatic fever was obtained in 28.1 per cent of the patients. Too often, however, mild arthralgia and muscle jelling are mistaken for a previous history. A previous history is of great diagnostic helpfulness when a patient presents himself with only one or two of the major criteria and two or three of the minor criteria.

Carditis is probably the most important of the major diagnostic criteria. Carditis can be said to be present when a tachycardia, especially a resting pulse rate of 100 or more, persists; when there is dilatation of the heart as shown by enlargement and/or gallop rhythm; when pericarditis is evidenced by a to and fro pericardial friction rub and/or a pericardial effusion; when myocarditis is demonstrated by dilatation, gallop rhythm and electrocardiographic changes, and when endocarditis is established by hearing definite organic cardiac murmurs.

Fever is considered the most frequent evidence of an active rheumatic state. It is the most reliable evidence of activity in the absence of demonstrable carditis. At the onset the temperature range may be normal or, as in the severer types, as high as 102 to 104 F. The degree of fever is not the paramount observation, but persistence of the fever is of utmost importance. No clinician can be sure that activity has ceased unless a carefully taken and recorded temperature curve has been observed for at least six to eight weeks' time. Persistent fever in the subacute types of the disease takes one of two forms. The more frequent form is an evening rise in temperature to 99 or 100 F. The more

9. Swift, H. F.: Rheumatic Fever, J. A. M. A. **92**: 2071 (June 22) 1929.
10. Jones, D. E., cited by Stroud, W. D.: The Diagnosis and Treatment of Cardiovascular Disease, Philadelphia, F. A. Davis Company, 1940.

insidious and most frequently unobserved form is a cyclic type of curve. In this form the temperature remains at a normal or a slightly subnormal level for one to two weeks and then becomes mildly elevated for a few days or as long as a week. Fever is seldom the only evidence of rheumatic activity. Persistent fever must be viewed seriously especially if two or more minor criteria are present.

Polyarthritis, or migrating acute arthritis, for over three centuries has been considered the significant sign of the disease. In recent years the literature has emphasized the unimportance of the articular signs. In the primary attack the signs related to the joints are usually prominent and frequently constitute the presenting symptom and sign. The major joints become red, hot and swollen in a migrating fashion. With rest the articular signs disappear quickly. The salicylate compounds in adequate dosage are specific and prompt in action. The red, hot, swollen joints subside, leaving no residual pathologic conditions. In those patients in the third decade of life arthralgia may persist. The persistent arthralgia is not considered a sign of activity when all other criteria have disappeared. If one major or two minor criteria persist, then the complaint of painful joints must be considered as evidence of rheumatic activity.

Chorea is a relatively infrequent disease in the second and third decades of life. It has occurred in this series of patients in 0.047 per cent. None of the cases have exhibited the severe choreiform movements seen in childhood. There have been other neurologic manifestations occurring during the active course of the disease. In 2 patients temporary hemiplegia developed with gradual complete recovery. In 6 patients there developed unilateral or bilateral involvement of the brachial plexus varying from weakness and pain in the entire upper extremity to wrist drop. In 2 patients there developed temporary foot drop. These neurologic signs were not considered of psychic origin. With continued treatment of the rheumatic state the organic neurogenic signs cleared up promptly.

MINOR DIAGNOSTIC CRITERIA

The minor criteria in the order of their relative importance are herewith described.

Pneumonitis.—Pneumonitis was overlooked by most American clinicians until Boas and Schwartz,[11] Paul,[12] Swift,[9] Coburn [13] and Gouley and Eiman [14] called attention to the clinical and pathologic findings. The constant occurrence of pneumonitis in the acutely ill and the frequency with which it is found in the relatively mild stages of rheumatic activity emphasize its importance. Frequently the chief complaint of the patient is dyspnea and the first outstanding sign is that of pneumonitis; likewise it is frequently the first sign found in a current cycle and in a reactivation. When the roentgenologic examination of the lungs simulates an atypical pneumonia and the sputum yields no specific organism in a rheumatic fever patient, the diagnosis of rheumatic pneumonitis is considered established.

Tachycardia.—Tachycardia is a minor diagnostic criterion which, if constant and persistent during sleep, is of positive value. Paroxysmal tachycardia and auricular fibrillation were infrequent in this series of patients.

Subcutaneous Nodules.—Subcutaneous nodules are not seen frequently. They are a definite sign of activity. In the past their significance has been considered ominous, but perhaps this has been because they were not looked for carefully in the subacute and mild cases. They are a diagnostic sign but do not carry the poor ultimate prognosis formerly attributed to them.

The Purpuras and Epistaxis.—There is a definite increase in the fragility and permeability of the capillaries in the rheumatic subject. Purpuric manifestations are seen but seldom. Not over 0.3 per cent in the entire series showed purpura. Epistaxis is of similar significance and occurs infrequently in patients in the second and third decades of life. When purpura is present it is a helpful diagnostic sign.

Loss of Weight.—Loss of weight is a common occurrence in the acute phases of the active state and gain in weight is commensurate with the improvement in the patient.

Abdominal Pain.—Although abdominal pain has been considered of great importance in the literature, it is a relatively uncommon occurrence late in the disease. At the onset of an acute episode there may be abdominal pain without definite signs of localization, but if there is a previous history of rheumatic fever and the shortness of breath and tachycardia seem out of proportion to the fever of the patient, and especially if there are articular manifestations, it is safe to wait and watch; but if appendicitis cannot be ruled out, then perform a surgical operation, as the risk is small.

Recurrent Cycles.—Recurrent cycles of rheumatic fever may be initiated by surgical procedures such as dental extractions or tonsillectomy. The fracture of bones is almost sure to set up a recurrent cycle of activity. Fractured bones must be firmly fixed as soon after fracture as possible. It is unwise to extract teeth or to perform a tonsillectomy until six months has elapsed after all signs of activity of the rheumatic process have ceased.

Laboratory Data.—Results of laboratory tests are helpful but not specific in rheumatic fever. There is no specific laboratory diagnostic test.

Anemia.—The secondary type of anemia may develop rapidly in the extremely acute forms of rheumatic fever. In the mild types of the disease anemia is uncommon.

Leukocytosis.—The white blood cell count during the acute onset may be as high as 15,000 to 24,000 with as much as 90 to 95 per cent polymorphonuclear leukocytes. In the subsiding stage the leukocyte count falls rapidly to normal and is not a reliable index to the degree of activity.

Antistreptolysin Titer.—The antistreptolysin titer is elevated at the onset of disease and continues to remain elevated for a long time. Because of the technical difficulties of the determination and because the titer remains elevated after other signs of activity have disappeared, it is not a satisfactory guide as to the degree of activity or the indicated treatment. Its greatest value is in the etiologic study of rheumatic fever.

Blood Sedimentation Rate.—The sedimentation rate is elevated during the phase of rheumatic activity. It is the best single guide to the degree of such activity.

11. Schwartz, S. P., and Boas, E. P.: Am. Heart J. **2**: 375 (April) 1927.
12. Paul, J. R.: Medicine **7**: 383 (Dec.) 1928.
13. Coburn, A. F.: The Factor of Infection in the Rheumatic State, Baltimore, Williams & Wilkins Company, 1931.
14. Gouley, B. A., and Eiman, J.: Am. J. M. Sc. **183**: 359 (March) 1932.

If the sedimentation rate remains elevated when all other signs of activity have disappeared, then the clinician must rule out other causes for an increased rate of sedimentation.

Electrocardiographic Changes.—There are three electrocardiographic changes indicative of carditis: first, a shifting auriculoventricular conduction time, especially if the PR interval is well over 0.24 second. This change is seen in varying degrees up to the Wenckebach phenomena and complete auriculoventricular dissociation; second, the typical electrocardiographic picture of pericarditis; and third, the QRS and T wave changes which are seen in myocardial damage resulting from the anoxia of coronary insufficiency. The coronary insufficiency is the direct result of coronary arteritis of moderate to severe degree.

Urinary Changes.—The urinary changes in rheumatic fever have been minor and notable for their absence. In the acute phases of the disease the urinalysis may reveal albumin and a moderate number of cells; in the subsiding phase, the urinalysis is usually normal.

Causes of Death.—The frequency of death from the primary attack of rheumatic fever was small. Only 13 deaths occurred in over 10,000 rheumatic fever patients of military age. The causes of death in this group, in order of frequency, were congestive failure, pneumonitis, coronary occlusion with myocardial infarction, and shock resulting from necrosis of the adrenal gland.

THE DIFFERENTIAL DIAGNOSIS

Rheumatic fever in its acute form must be differentiated from undulant fever, rheumatoid arthritis, chronic osteoarthritis, tuberculosis, Reiter's syndrome and the collagenous diseases. This is best done by evaluating the previously outlined criteria and by close observance of the clinical course of the disease.

Undulant fever is ruled out by a persistently negative cross agglutination test and by the failure of carditis to develop.

Rheumatoid arthritis is difficult to differentiate early, but time with the visual as well as roentgenologic changes in the joints points to this entity rather than to rheumatic fever.

In osteoarthritis the development of roentgenologic evidence of articular disease and the lack of most of the major and minor criteria of rheumatic fever serve to make the differentiation early.

Tuberculosis is confused with rheumatic activity by the prolonged fever, but here again the absence of the other four major criteria and of most of the minor criteria rules out rheumatic fever.

TREATMENT

The essential problem in the treatment of rheumatic fever is the prevention of disabling heart disease. If the fulminating polycyclic type of rheumatic fever could be attenuated and shortened and if the monocyclic and subclinical types could be prevented from causing severe inflammatory-like reactions in the vascular tissues then disabling heart disease could be avoided. It is believed that angiitis may continue indefinitely after the initiation by an antigen-producing organism in the throat. Since there is as yet no effective method known to destroy the antigen-producing bacterial agent or to prevent the nonsuppurative inflammatory reactions in the vascular tree, there must be an alinement of all the available therapeutic agents to prevent death or at least to reduce cardiac damage to the minimum.

The treatment of the rheumatic state is divided loosely into two parts according to the stage of the disease—the stage of activity and the stage of quiescence.

The Stage of Activity.—The point at which the physician should start treatment of the active rheumatic state is difficult to determine. Every patient with an acute suppurative sore throat due to hemolytic streptococci is a potential subject for rheumatic fever. Observation of the patient with a hemolytic streptococci infection of the throat should be maintained over a longer period of time than that which is usual, in order to detect the onset of an active rheumatic state at the earliest possible moment. The patient who is slow in recovering from the acute throat infection due to hemolytic streptococci and who fatigues easily, having a slight evening fever, an elevated blood sedimentation rate and a high antistreptolysin titer, is one in whom rheumatic fever is likely to develop. With the onset of the active stage of rheumatic fever early recognition is requisite, and the patient should be placed immediately on a carefully planned and administered regimen.

Rest.—Absolute rest in bed is imperative and must be continued in varying degrees until the signs of rheumatic activity have disappeared. Rest means limited activity in bed, quiet surroundings conducive to sleep and diversionary interests. As the patient improves rest must be judiciously proportioned to the state of the disease.

Nursing Care.—Nursing care wisely and intelligently carried out does much to promote rest, sleep and mental diversion. A daily bath with tepid water, clean linen and attention to diet and to elimination are elementary but essential nursing services.

Diet.—The diet should be highly nutritious, of at least 3,500 calories per day given in liquid to soft or solid form dependent on the patient's temperature and general condition.

The Salicylates.—Only the salicylates have survived the test of time in the treatment of rheumatic fever. Most clinicians agree that the salicylates have an analgesic and antipyretic action in rheumatic fever. Few, however, feel that salicylates modify the progress of the disease process. Salicylates do relieve pain, lower the temperature and hasten the absorption of the transudate in the serous cavities during the first attack, but they have no apparent effect on the disease process after the sensitizing stage is passed. Furthermore, the salicylates have little if any analgesic and antipyretic effect in the second and third cycles and in the course of the prolonged monocyclic cases.

Salicylates in the form of sodium salicylate 25 grains (1.62 Gm.) and sodium bicarbonate 10 grains (0.65 Gm.) every four hours or acetylsalicylic acid 20 grains (1.29 Gm.) and sodium bicarbonate 20 grains (1.29 Gm.) every four hours, day and night, with 3,000 cc. of water, elevate the salicylate concentration to the optimum level of 30 to 50 mg. per hundred cubic centimeters of blood within twenty-four to forty-eight hours. If the salicylates are administered absolutely regularly with an adequate quantity of water the level in the blood remains at or near the optimum. The salicylates are promptly absorbed from the upper part of the gastrointestinal tract and appear in the blood within fifteen to thirty minutes, and the optimum level can be maintained with the aforementioned dosage. The excretion of the drug is rapid through the kidneys so that

within twenty-four hours after the cessation of salicylate therapy little trace, if any, can be found in the blood. The drug may be administered in the form of the sodium or acetyl salts without alteration of the optimal blood level. The drug should never be given in the enteric-coated tablets, as it is absorbed from the upper part of the gastrointestinal tract, and if the enteric-coated tablets are slow in disintegrating in the colon a toxic dose may suddenly be absorbed from the accumulated tablets resting there.

The salicylates are unpleasant to take orally and may induce tinnitus aurium, burning of the eyes, sweating, cerebral excitement, irritability and irresponsibility, as well as gastric irritation. However, in the dosage mentioned such symptoms are infrequent. If the patient is ambulatory and signs and symptoms of salicylism develop, the return to rest promptly affords relief. Gastric irritation is readily avoided by the ingestion of an abundance of water and food with the drug. The only reason for the administration of sodium bicarbonate with the salicylates is to prevent gastric irritation. The hydrochloric acid of the stomach changes the sodium and acetyl salts to salicylic acid, in which form it appears in the blood. The use of somewhat smaller doses of sodium bicarbonate than those reported by Smull, Wegria and Leland[15] (1944) do not lower the blood salicylate level.

The intravenous administration of the drug is undesirable and unnecessary except in those rare instances in which salicylates cannot be given orally. When the salicylates are swallowed according to the aforementioned dosage, the level is consistently maintained. If the level is low the patient is not receiving the drug regularly; if the level is too high there has been an insufficient fluid intake. The administration of 1,000 cc. of a 1 per cent solution of sodium salicylate intravenously over a period of six to ten hours not only tires the patient but may throw an added strain on the right side of the heart. The administration of 10 cc. of a 10 per cent solution of the drug intravenously raises the level adequately and does no harm when given at the rate of 1 cc. per minute through a 26 gage needle but may sclerose the veins, making frequent administration difficult. In congestive failure of the heart there is slow absorption of the drug and salicylates do not benefit the patient materially. Salicylates per rectum are poorly absorbed. A study on the absorption of the salicylates shows that no appreciable amount of the drug reaches the blood stream when administered per rectum.[15a] Therefore oral administration is the method of choice.

Digitalis.—Treatment with digitalis is of doubtful value in the active stage of rheumatic fever. Its use is indicated only with the onset of congestive failure during the course of an active carditis. The drug is administered in full dosage orally. The method calls for a dosage of 1 U. S. P. unit per 10 pounds (4.5 Kg.) of body weight, adding 1 unit (1½ grains, 1 Gm.) for each additional day required to complete digitalization, and thereafter a maintenance dose of 1 U. S. P. unit is to be given daily. It has not been necessary to use digitalis or quinidine sulfate in the treatment of the infrequent instances of paroxysmal auricular fibrillation and the more infrequent cases of paroxysmal tachycardia, as these conditions subside spontaneously with rest. Quinidine is seldom used because of the infrequent occurrence of the paroxysmal tachycardias. Premature contractions occurring in the acute phase of the disease are not eliminated by the use of a daily ration of this drug. Rest and the avoidance of cigarets are measures which are of distinct value. Quinidine and *p*-hydroxy-*a'*-methylphenylethylamine hydrobromide have not been useeful in the correction of arrhythmias during the stage of carditis.

Oxygen.—Oxygen is of great value in the treatment of rheumatic pneumonitis and congestive failure. Restlessness, cyanosis, dyspnea and even tachycardia are helped by the administration of oxygen. Oxygen is given early and as long as the patient is embarrassed. It is easily administered by the nasal tube method, passing approximately 4 liters of oxygen per minute through a humidifier and into the nasopharynx. By this method the coldness of the oxygen tent is avoided, the patient is less annoyed and feeding and nursing care are rendered with greater ease. The saving in the amount of oxygen used is at least one half.

Diuretics.—Diuretics are used only when there is evidence of congestive heart failure. The diuretics are believed to be of greater value than any other drugs in the treatment of congestive failure in acute carditis. It has been observed that right-sided failure of the heart is frequently primary. It is believed that this is due to the associated rheumatic pneumonitis which decreases the vascular pulmonary tree to such an extent that the blood pressure in the lesser circulation is elevated and throws a marked strain on the right ventricle. The diuretics in the form of theobromine and sodium acetate in dosage of 7½ grains (0.49 Gm.) or theophylline ethylenediamine 3 grains (0.19 Gm.) four times a day are effective. If the engorged liver and the peripheral edema persist when absolute rest in bed, digitalis and xanthine diuretics have been used, then injection of the mercurial diuretics intravenously have been found helpful. In acute carditis the mercurial diuretics may produce anuria and therefore must not be used if there is evidence of renal impairment or inflammation.

Sulfonamide Drugs.—The sulfonamide compounds have been used in a large number of patients with rheumatic fever because of the apparent relationship between the streptococcic infection of the throat and the acute rheumatic state. Rheumatic fever patients with intercurrent tonsillitis, sinusitis or otitis media with positive hemolytic streptococcic cultures have been treated with a full dosage of sulfadiazine. The salicylates were continued at the same time. This method of treatment resulted in an appreciable increase in the number of rheumatic fever patients and in the number of recurrences.[7]

Penicillin.—Penicillin is not beneficial in the treatment of rheumatic fever. It is harmful when continued over a long period of time.[16] Penicillin is used in the treatment of the intercurrent infections.

Vitamins.—The food intake per patient should average 3,250 calories a day and since a varied diet is made available, supplementary vitamins should not be used routinely. In cases in which a patient has been seri-

15. Smull, K.; Wegria, R., and Leland, J.: Effect of Sodium Bicarbonate on Serum Salicylate Level During Salicylate Therapy of Patients with Acute Rheumatic Fever, J. A. M. A. **125**: 1173 (Aug. 26) 1944. Butt, H. R., and others: Studies in Rheumatic Fever, J. A. M. A. **128**: 1195 (Aug. 25) 1945.

15a. Huntington, R. W., and Griffith, G. C.: Studies in Rheumatic Fever: Absorption of the Salicylates, Ann. Int. Med. **24**: 1029 (June) 1946.

16. Watson, R. F.; Rothbard, S., and Swift, H. F.: Use of Penicillin in Rheumatic Fever, J. A. M. A. **126**: 274 (Sept. 30) 1944. Foster, F. P., and others: Treatment of Acute Rheumatic Fever with Penicillin, ibid. **126**: 281 (Sept. 30) 1944.

ously ill and the dietary intake has been deficient, vitamins are added. The use of ascorbic acid has not caused a more rapid convalescence as indicated by a leveling of the temperature curve and the sedimentation rate. Ascorbic acid lessens gastric irritation. In a small series of cases of rheumatic purpuras, vitamin P (hesperidin) has not corrected or prevented the recurrent attacks of petechial hemorrhages.[17] Vitamin K and calcium in large dosage have likewise been ineffective in correcting the increased capillary fragility common to the rheumatic state.

Iron.—Iron is of value in the correction of the anemias secondary to the active rheumatic state. Ferrous sulfate 6 grains (0.39 Gm.) three times a day is adequate dosage.

Fever Therapy.—Fever therapy has not been evaluated. It has been shown by Sutton and others[18] that chorea clears up rapidly with fever therapy. Sutton's recent comparative study[19] of treated and untreated chorea patients has suggested that this form of therapy may have a beneficial effect on the severity of subsequent cardiac lesions. A high ketogenic diet and salicylate blood level have adequately controlled the choreiform symptoms.

Roentgen Therapy.—Roentgen therapy has been advocated in the treatment of the active phase of carditis by Levy and Golden.[20] On the basis of their work 201 cases of active rheumatic fever were selected. The criteria for selection were that the disease must have been active with one or more recurrences for six consecutive months and had not reached the quiescent state on the usual therapy. The case histories, physical findings and laboratory procedures were analyzed before roentgen therapy was initiated and again six weeks after the series of treatments had been completed. The roentgenologist did not know the state of activity of the disease in any case and administered 100 r through the myocardium weekly for five weeks to 71 patients, the same dosage through the myocardium and over the cervical sympathetic ganglions to 63 patients and no treatment to 67 patients. Thus 71 patients received treatment of 500 r to the myocardium; 63 received the same dosage to the myocardium and to the cervical sympathetic ganglions and 67 received no treatment. In the last group the exposed field was blacked out by a lead filter. Of the 71 patients who received treatment to the myocardium, 49.4 per cent obtained no effect; 47.2 per cent showed slight improvement and 1.4 per cent pronounced improvement. Of the 63 patients who received treatment to the myocardium and cervical sympathetic ganglions, 65 per cent showed no effect while 33.3 per cent showed slight improvement and 1.6 per cent definite improvement. Of the 67 who received no treatment except psychic influences 59.7 per cent showed no effect, while 29.8 per cent showed slight improvement and 10.4 per cent well defined improvement. From this study it is believed that roentgen therapy had no therapeutic effect against rheumatic fever. There may have been a slight psychogenic effect in that the patient thought something was being done for him.

Foci of Infection.—Removal of foci of infection is not attempted during the active phase of the disease. The removal of foci of infection would seem to be a logical procedure in the quiescent stage except for two factors: first, the difficulty in determining the point at which the disease is quiescent even though all clinical and laboratory criteria for such have been met; and, second, the frequency with which recurrences of the active phase have been noted following tonsillectomy or dental surgery. Statistical proof shows the undesirability of removing teeth or tonsils until at least six months have elapsed after the disease has been thought to be in the quiescent state.[20a]

Blood Plasma.—It is believed that blood plasma should not be used in the active phase of rheumatic fever. Seven out of 9 patients were definitely worse after the administration of pooled plasma.

Serums and Vaccines.—Serums and vaccines have proved disappointing in the past (Hitchcock, McEwen and Swift,[21] Wilson[22] and Coburn[23]). Therefore they have not been used or further investigated.

Treatment in the Inactive or Quiescent Stages.—The treatment in the quiescent stage differs from that planned for the active stage largely in degree. The periods of rest are shortened. The nursing care is limited to little beyond the recording of the daily temperature curve and the supervision of the reconditioning program.

Climatotherapy.—The exposure of the rheumatic fever patient to a warm, dry climate and regulated heliotherapy is of some general benefit. The hemolytic streptococcus does not die out in a warm, dry climate. The incidence of rheumatic fever in Naval training camps in the temperate zone has not been definitely greater than that in the training camps in the subtropical zone. The type of rheumatic fever differs, however. It is believed that a warm, dry climate has a beneficial effect on the disease. Exposure to sunshine, however, must be gradual and carefully regulated.

Physiotherapy.—Physiotherapy is definitely harmful in the transudative stage of the rheumatic polyarthritis. It is of value in the older age group when there is residual muscular weakness, jelling, arthralgia, fibrositis and bursitis.

Avoidance of Infection.—Since there is a direct relationship between the hemolytic streptococcic infection of the throat and rheumatic fever, every effort should be made to protect those patients who have had the disease. With the onset of an acute infection of the upper part of the respiratory tract rest in bed is essential. Isolation technic should be practiced and the patient treated with 300,000 units of penicillin daily for two or three days. Various procedures such as the oiling of floors and blankets and sweeping with sawdust and pushbroom are used to minimize the dissemination of dust and have proved beneficial in preventing the spread of respiratory infections.

Salicylates apparently do not protect a sensitized person from recurrences nor are they of much benefit in

17. Montgomery, H.: Capillary Fragility in Rheumatic Fever, U. S. Nav. M. Bull. **46**: 11 (Nov.) 1946.

18. Sutton, L. P.: Treatment of Chorea by Induction of Fever, J. A. M. A. **97**: 299 (Aug. 1) 1931. Sutton, L. P., and Dodge, K. G.: J. Pediat. **3**: 813, 1933; J. Lab. & Clin. Med. **21**: 619, 1936.

19. Sutton, L. P., and Dodge, K. G.: J. Pediat. **12**: 490, 1938.

20. Levy, R. L., and Golden, R.: Proc. Soc. Exper. Biol. & Med. **23**: 351, 1926; Am. J. Roentgenol. **18**: 103, 1927; Am. Heart J. **4**: 127, 1928; Am. J. Roentgenol. **29**, January 1933.

20a. Griffith, G. C.: Rheumatic Fever and Tonsillectomy. Paper read before the Los Angeles Mid-Winter Research Study Club, January, 1947.

21. Hitchcock, C. H.; McEwen, C., and Swift, H. F.: Am. J. M. Sc. **180**: 497, 1930.

22. Wilson, M. G.: The Biologic Products of Streptococcus Cardioarthritidis, J. A. M. A. **94**: 842 (March 22) 1930.

23. Coburn, A. F.: The Factor of Infection in the Rheumatic State, Baltimore, Williams & Wilkins Company, 1931. Coburn, A. F., and Paul, R. H.: J. Clin. Investigation **14**: 783, 1935.

the treatment of recurrences, except for their antipyretic and analgesic effect. The administration of sulfanilamide once a hemolytic streptococcic infection has started has not prevented rheumatic recrudescences (Coburn,[24] 1944). The daily administraion of sulfathiazole or sulfadiazine throughout the year will reduce the incidence of streptococcic infection 80 per cent (Coburn,[24] 1944). A well controlled prophylaxis program is necessary to establish conclusively the advantages and disadvantages of such a procedure, which may involve serious hazards, and probably increases the number of patients who develop the poststreptococcal syndrome.

The use of penicillin in a prophylactic program, especially penicillin in pastilles for the prevention of the streptococcic infections, is now feasible. The employment of penicillin therapy for the acute hemolytic streptococcic infections of the throat does not tend to influence the rate of occurrence of recrudescence of rheumatic fever.

Reconditioning.—The purpose of reconditioning is threefold: first, to increase the blood circulation in the vital organs and thus promote oxygenation of the tissues; second, to prevent the development of muscular weakness, and third, to maintain interest and morale. A reconditioning program should begin as soon as the patient is well enough to cooperate in supervised deep breathing exercises. The Goldthwait breathing exercises are used. Deep breathing exercises are followed by muscle extension and flexion exercises in bed. When the patient has reached the inactive stage of the disease graduated exercises should be prescribed so that fatigue may be prevented and muscle tone maintained.

Educational Program.—As soon as the patient is comfortable, diversional reading is begun, followed by studies within the patient's field of interest. By occupational, educational and reconditioning programs the patient's morale is maintained, recovery is hastened and fewer psychoneurotic traits develop.

SUMMARY

In this overall survey of a large group of rheumatic fever patients of military age the following observations deserve further emphasis:

1. Rheumatic fever definitely followed epidemics of the streptococcic throat infections.

2. The sulfonamide method of treatment of the streptococcic throat infections did not prevent the development of the poststreptococcic rheumatic syndrome.

3. The largest number of the rheumatic fever patients of military age fell into the subacute monocyclic type, 61.3 per cent, and the frequency of carditis in this group emphasizes its importance in relation to the development of chronic valvular heart disease.

4. Pneumonitis is second to carditis in importance because of its frequency, its relation to primary right sided heart failure and as a cause of death.

5. Every patient with a streptococcic throat infection is a potential rheumatic fever subject and the early recognition of the poststreptococcic rheumatic syndrome and the institution of adequate early salicylate therapy is paramount.

24. Coburn, A. F.: Canad. M. A. J. **51**: 366, 1944.

ATYPICAL FEATURES OF RHEUMATIC FEVER IN YOUNG ADULTS

MAURICE SOKOLOW, M.D.
San Francisco
and
ALBERT M. SNELL, M.D.
Rochester, Minn.

Rheumatic fever has been described so often and so well that the classic variety of the disease is universally recognized and promptly diagnosed, even by those whose experience in the field has not been large. That atypical forms of the acute phase of the disease exist and pass unrecognized is, however, well demonstrated by the frequent finding of late valvular disease among patients who give no history of an acute episode of fever or involvement of joints. In a large naval hospital where many patients with proved or suspected rheumatic fever were under observation, many of the atypical phases of the acute rheumatic state were seen and followed over considerable periods. It is the purpose of this paper to discuss some of the less well known clinical syndromes of rheumatic fever in the hope that such a report will assist others in the earlier diagnosis of similar cases.

CRITERIA FOR DIAGNOSIS

Jones,[1] in a helpful paper, has discussed the criteria for the diagnosis of rheumatic fever. He has divided the clinical manifestations into: (1) major manifestations (carditis, arthralgia, chorea, nodules and verified history of previous rheumatic fever) and (2) minor manifestations (fever, abdominal or precordial pain, erythema marginatum, epistaxis, pulmonary changes and abnormal laboratory findings). He has suggested that any combination of the major manifestations or the presence of one major and two minor manifestations of the disease gives one a reasonably certain basis for diagnosis. We have attempted to use these criteria as a working plan in our cases but have encountered some difficulty in depending on them entirely. Chorea and subcutaneous nodules were only rarely present in our adult cases and so were of limited diagnostic value. A history compatible with previous rheumatic fever was present in approximately a third of our cases, but if one had insisted on a medically verified history the percentage would have been considerably lower. Cardiac enlargement, pericarditis, congestive failure and significant cardiac murmurs were infrequent at the time of admission. These were present in less than 10 per cent, if one interprets a clinically significant cardiac murmur as being either a diastolic murmur or a long, loud systolic murmur not varying with respiration or position. Abnormalities in the electrocardiogram remained, therefore, as the principal reliance in the diagnosis of the rheumatic state. Prolongation of the PR interval and inverted T waves in lead 1, 2 or 4 constituted more than 90 per cent of the significant

From the Division of Medicine, University of California Medical School (Dr. Sokolow, formerly Lieutenant Commander, Medical Corps, United States Naval Reserve) and from the Mayo Clinic (Dr. Snell, formerly Captain, Medical Corps, United States Naval Reserve).

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1. Jones, T. D.: The Diagnosis of Rheumatic Fever, J. A. M. A. **126**: 481-484 (Oct. 21) 1944.

changes noted. Slight deviations of the ST segment, ectopic beats and slight lowering of the T waves were not considered as clinically significant.

Arthralgia, with or without visible evidence of acute arthritis, was the most commonly encountered clinical symptom. Objective articular manifestations were often absent, although the subsequent course of the disease indicated that the subjective pains in the joints were significant of rheumatic disease. It became apparent that the only common major manifestations (according to the Jones criteria) were arthralgia or arthritis and abnormalities in the electrocardiographic pattern. At times one or the other was absent, and under such circumstances the minor diagnostic criteria had of necessity to be utilized.

Of the minor manifestations, an elevated sedimentation rate and elevation of temperature were the most consistently helpful. It was extremely rare to see a patient with active rheumatic fever without elevation of temperature or with a normal sedimentation rate, although such negative findings were observed on occasion in cases in which carditis subsequently developed. The elevation of temperature was often of short duration whereas the sedimentation rate was usually the last sign of activity to disappear. The sedimentation rate was, therefore, of more practical value than elevation of temperature, especially if the disease was not encountered early in its course. Tachycardia was present usually only in the early stages, with fever (unless pericarditis or cardiac failure was present), and often the cardiac rate was normal despite other obvious signs of rheumatic activity, including carditis. Epistaxis, erythema marginatum, abdominal and precordial pain and pneumonitis were all observed but were sufficiently infrequent to be of little diagnostic aid in many cases. Anemia was surprisingly uncommon, considering its frequency in the rheumatic fever of childhood, but occasionally it was helpful in indicating the possibility of continued rheumatic activity rather than as an initial diagnostic aid. Leukocytosis was present in approximately two thirds of the cases observed by us but was usually of relatively short duration. The elevated sedimentation rate was, as has been previously stated, a more reliable and persistent sign than other minor manifestations.

The presence of a known streptococcic disease within the previous six to eight weeks was helpful in focusing attention on the possibility of rheumatic fever, and many mild rheumatic infections were detected by following the sedimentation rate and examining the electrocardiographic pattern. It was in this group of cases particularly that many of the atypical early clinical features of rheumatic fever were recognized.

Our experience, therefore, has indicated that arthralgia or arthritis, especially following a known streptococcic disease of the upper part of the respiratory tract, in association with significant abnormalities in the electrocardiogram, with fever and an elevated sedimentation rate, is the most common combination of symptoms and signs in young adults with rheumatic fever. The other major and minor manifestations, as outlined by Jones, were not sufficiently common in the present series of cases to be used as the sole possible criteria for a diagnosis.

CLINICAL MANIFESTATIONS

I. *Minimal Presence or Complete Absence of Articular Symptoms.*—The absence or insignificance of articular symptoms in rheumatic fever has frequently been described in the literature. This feature is relatively common in patients who have recently had a streptococcic infection, particularly scarlet fever. We have frequently observed patients convalescing from the last-mentioned disease or from an infection of the upper part of the respiratory tract who, because of failure to regain strength or because of vague arthralgia, were sent to the hospital for study. An abnormal electrocardiogram was demonstrated, and the patients subsequently were shown to have rheumatic fever. Some of these patients have had no articular symptoms whatever at any time; in others the symptoms referable to the joints were mild and entirely subjective. Nevertheless, active carditis was eventually demonstrated in certain of these patients.

The significance of these late poststreptococcic manifestations has been the subject of a number of recent reports.[2] These papers have indicated that after scarlet fever or streptococcic pharyngitis approximately 15 to 20 per cent of adults will show clinical or electrocardiographic manifestations indistinguishable from those of rheumatic fever. In the patients described by these observers one group had classic rheumatic fever, while another group had vague arthralgia, feelings of ill health and mild secondary rises of temperature. These symptoms were often so mild that a physician would hardly have been consulted. A third group remained completely asymptomatic; yet laboratory and electrocardiographic findings developed which were similar in all respects to those of the group that had frank rheumatic fever. These observations as well as our own strongly suggest that rheumatic fever following streptococcic diseases varies quantitatively in a striking manner and may present itself with protean manifestations ranging from a clinically silent to a clinically fulminant disease. On the basis of our own experience, the importance of carefully evaluating poststreptococcic symptoms with the possibility of rheumatic fever in mind can hardly be overestimated.

II. *Monarticular Involvement.*—The classic feature of rheumatic fever is a migratory polyarthritis. It must, however, be emphasized that in many cases rheumatic fever may show monarticular involvement throughout its entire course or for a period before the typical polyarthritic spread occurs. Recent articles from the military services have noted this feature.[3]

Our experience has been that the joints of the lower extremities were those most commonly involved. The frequency of monarticular involvement of the ankles, the small joints of the feet and the knees probably was responsible for erroneous diagnoses of sprained ankle, flat feet or sprained knee which were initially often made in these cases. When an injury does not seem to be the obvious explanation for pain and swelling in a single joint of the lower extremities, it is necessary to consider the possibility of rheumatic fever.

III. *Onset and Major Manifestations in Hands and Feet.*—It is not often appreciated that involvement of the small joints of the hands and feet may dominate the clinical picture of rheumatic fever and often may be the sole articular manifestation of the disease. The

2. Rantz, L. A.; Boisvert, P. J., and Spink, W. W.: Etiology and Pathogenesis of Rheumatic Fever, Arch. Int. Med. **76**: 131-138 (Sept.) 1945. Rantz, L. A.; Spink, W. W., and Boisvert, P. J.: Abnormalities in the Electrocardiogram Following Hemolytic Streptococcus Sore Throat, ibid. **77**: 66-79 (Jan.) 1946. Watson, R. F.; Rothbard, S., and Swift, H. F.: The Relationship of Postscarlatinal Arthritis and Carditis to Rheumatic Fever, J. A. M. A. **128**: 1145-1152 (Aug. 18) 1945.

3. Rosenberg, D. H.: The Clinical Aspects of Rheumatic Fever in Adults, New England J. Med. **234**: 148-152 (Jan. 31) 1946. Kimbro, R. W.: A Report on One Hundred Cases of Rheumatic Fever in Young Adults, Texas State J. Med. **41**: 296-300 (Oct.) 1945.

following report of a case demonstrates this fact and emphasizes that a careful study of the aspects of the disease other than articular may reveal the significance of unusual symptoms referable to the joints.

CASE 1.—A man aged 18, who had severe febrile pharyngitis on March 5, 1945, was treated with sulfadiazine and was returned to duty four days later without residual symptoms. He was transferred to a new station and there reported to the sick bay on April 10, complaining of swelling and stiffness of the interphalangeal joints of the index and middle finger of each hand, of twenty-four hours' duration. It was observed that he had a temperature of 100 F. and that his hands were swollen and slightly tender, with pain on active and passive motion of the affected joints. The sedimentation rate was 25 mm. in one hour (Westergren). A tentative diagnosis of rheumatic fever was made, and the patient was transferred to a naval hospital two days later. On arrival his joints were apparently normal except for slight tenderness on manipulation of the joints that had been so painful and swollen forty-eight hours before. A faint maculopapular rash was present over his thorax, abdomen, hips and thighs. There was a soft apical systolic murmur.

The laboratory data revealed normal results of urinalysis, a hemoglobin content of 87 per cent, a leukocyte count of 9,200 per cubic millimeter of blood, a negative Kahn reaction and a sedimentation rate of 29 mm. in one hour (Westergren method). The vital capacity was 4.2 liters. The electrocardiogram revealed partial heart block, with a PR interval of 0.28 second.

The patient was given routine treatment with rest in bed and 10 Gm. of salicylates daily, the doses being administered every four hours. At no time did he have further pains in the joints, and he was afebrile and asymptomatic throughout his stay in the hospital. The partial heart block was still present on April 15 (PR interval 0.32 second), but had disappeared by April 27 (PR interval. 0.19 second). The T waves were upright in all leads. The sedimentation rate gradually fell from a level of 28 mm. per hour on April 17 to one of 7 mm. per hour on May 18.

It is apparent that this patient had rheumatic fever with involvement of the interphalangeal joints of each hand as the only articular manifestation of the disease. The articular symptoms lasted only forty-eight hours, but a prolonged PR interval was observed at a time when the joints were normal to physical examination. The sedimentation rate became normal after almost a month, being the last sign of rheumatic activity to disappear. It is to be noted that the leukocyte count was normal when other definite signs of activity were present.

IV. *Prodromal Aching for Days to Weeks Prior to Onset of Acute Arthritis.*—Rheumatic fever is usually thought to be a disease in which the articular symptoms appear rather abruptly and are acute. Nevertheless, fleeting but recurrent mild polyarthralgia without objective signs may precede the usual type of involvement of the joints. As the following report of a case indicates, polyarthralgia (even in the absence of objective involvement of the joints) subsequent to a known streptococcic respiratory infection should indicate the necessity for further study.

CASE 2.—A man aged 18 had a long-lasting febrile infection of the upper part of the respiratory tract in February 1945 and was hospitalized for a month. He had a residual cervical adenopathy but was otherwise well until about the middle of April, when he noted aching pain in the feet. He reported to his local sick bay where a physical examination was reported as negative and the sedimentation rate as 14 mm. in one hour. He was given sulfonamide drugs and salicylate preparations and assigned to light duty. The aching became milder, and he returned to full duty after a few days even though slight residual symptoms persisted. A week later he again reported to sick bay because of continued aching in the back in addition to the pain in the feet. The sedimentation rate at this time was reported as 27 mm. in one hour. After he had been kept under observation in the sick bay for several days, aching appeared in his toes. Objective findings were not observed although the pain in his joints became migratory in type. On the day before entry to a naval hospital (May 16) redness, pain and swelling developed in the toes of both feet, and in the evening he noted similar changes in both ankles.

On arrival at the hospital his only complaints were referable to his toes, the pain in the ankles having practically subsided. The right great toe was slightly red, swollen and extremely tender. The ankles were tender on pressure but were not badly swollen. The patient had a temperature of 103 F. and a pulse rate of 100. The heart was not enlarged, but there were a slight, soft apical systolic murmur and a diastolic gallop rhythm. The laboratory data revealed a normal urine, a hemoglobin content of 78 per cent, an erythrocyte count of 3,900,000 and a leukocyte count of 11,500 per cubic millimeter of blood with 75 per cent polymorphonuclear cells. The blood culture was negative on two occasions; the Kahn reaction was negative and the sedimentation rate was 28 mm. in one hour. The electrocardiogram on entry showed a PR interval of 0.28 second with a Wenckebach phenomenon and dropped beats (fig. 1).

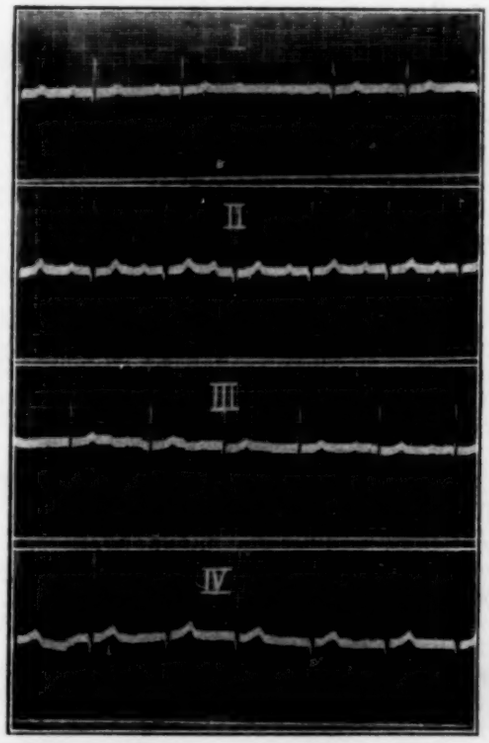

Fig. 1 (case 2).—Partial auriculoventricular block with Wenckebach phenomenon (lead 1).

The patient was put to bed and full doses of salicylates were administered. The temperature fell rapidly, being 100.4 F. on May 18 and normal thereafter. The sedimentation rate fell gradually, no significant change being noted for two weeks, but by June 25 it had fallen to 5 mm. in one hour. The partial heart block persisted until June 11; it was noteworthy that for weeks the PR interval was 0.24 to 0.28 second with cardiac rates in the sixties without dropped beats. On June 25 there appeared a short, rough aortic systolic murmur, grade 2 (on the basis of 1 to 4, in which 1 indicates the mildest and 4 the most severe condition). Administration of salicylates was continued until the patient's transfer to a convalescent hospital on July 24, at which time his electrocardiogram was normal and his sedimentation rate varied from 5 to 10 mm. in one hour.

Case 2 illustrates that rheumatic fever may be initiated by migratory aching and stiffness of several joints lasting days to weeks before fever, acute polyarthritis and carditis appear. The interpretation of polyarthralgia as an isolated clinical feature is often difficult, but an elevated blood sedimentation rate and

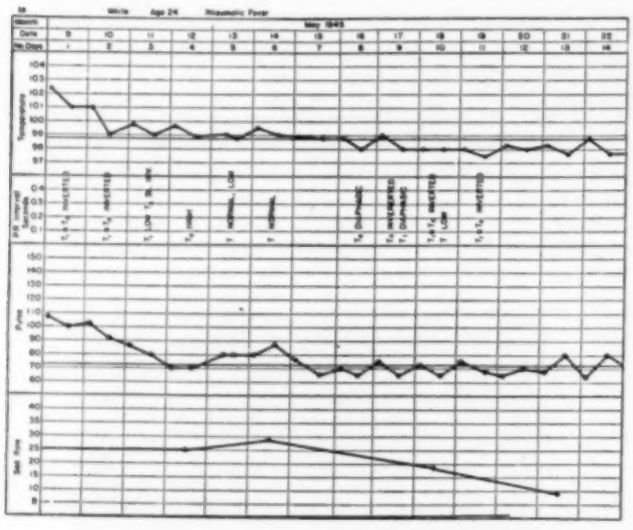

Fig. 2.—Typical temperature chart in rheumatic fever treated with salicylates.

a previous history of an infection of the upper part of the respiratory tract should have suggested the diagnosis in this case. The myocardial and valvular damage that eventually resulted might have been prevented by earlier diagnosis and treatment. The apical diastolic gallop was the earliest clinical sign of carditis in this case, although later a significant aortic murmur appeared.

V. *Recurrent Acute Arthritis of Short Duration With Apparently Complete Subsidence Between Attacks.*—Polycyclic rheumatic fever is a well recognized variety of the disease, but in the typical cases each cycle represents fairly classic features of rheumatic fever of significant duration. We have observed a number of cases in which apparently complete relief of acute arthritis and fever and reduction of the sedimentation rate occurred in a few days on relatively small doses of salicylates. It was not until this type of episode was repeated several times, often with a different group of joints involved in each attack, that the patient in question was referred to a hospital for study. In most of our cases of this type the recurring arthritis reappeared in a few days, often within a week after the patient had been returned to duty.

Case 3.—A man aged 25 was admitted to a naval hospital on April 3, 1945 with a diagnosis of acute arthritis. He had had a sore throat on several occasions in the past two years, the last time on Feb. 15, 1945. On March 10 aching pain without swelling had developed in the right knee. He continued ambulant, but a week later the pain was severe and definite swelling had appeared. He reported to his sick bay, where it was noted that his right knee was swollen, red, hot and tender. The sedimentation rate was 25 mm. in one hour and the temperature 100.2 F. He was put to bed with hot packs and given 3 Gm. of salicylates daily. He became afebrile in five days and the joint symptoms subsided within a week. The sedimentation rate was 10 mm. in one hour on March 26. No electrocardiographic study was done at this time. He was returned to duty on March 29. Within forty-eight hours pain and swelling in the right knee had reappeared, and the next day the left knee was similarly affected.

On arrival at the naval hospital examination revealed a temperature of 100 F. and slight swelling and tenderness of both knees. Examination of the heart gave essentially negative results. Laboratory studies revealed moderate anemia; the sedimentation rate was 25 mm. in one hour and the electrocardiogram was normal.

Salicylates, 10 Gm. daily, were administered and strict rest in bed was ordered. The patient was afebrile within twenty-four hours and the arthritis was completely quiescent within a week. Serial electrocardiograms taken twice weekly for two months showed no abnormalities. The sedimentation rate fell gradually, serial determinations twice a week being 18, 15, 13, 11, 12, 10, 14, 13 and finally 5 mm. per hour on May 21, seven weeks after entry.

On May 22 subcutaneous nodules about the knees were noted, and on full range of motion his knees were slightly painful. The patient was still taking salicylates. He felt "washed out" and was easily fatigued on the slightest exertion. At this period an early aortic diastolic murmur appeared. The sedimentation rate remained normal, being 5 and 6 mm. per hour on subsequent determinations. The diastolic murmur persisted, and shortly thereafter the patient was transferred to a convalescent hospital.

Case 3 illustrates (1) monarticular involvement; (2) rapidity of recurrence with premature physical activity; (3) the need for clinical as well as laboratory study, since electrocardiographic tracings were normal and yet a diastolic murmur developed while the patient was under observation, and (4) the presence of rheumatic activity despite a normal blood sedimentation rate.

VI. *Absence of Fever During the Acute Stage.*—Fever is almost invariably present in the acute rheumatic state, but we have observed several cases in which temperatures were never elevated during the period of observation. It is of course possible that fever had been present prior to hospitalization. As a general rule, fever subsided promptly (within four or five days) on full doses of salicylates and rest in bed, but it is not likely to do so while the patient is ambulatory.

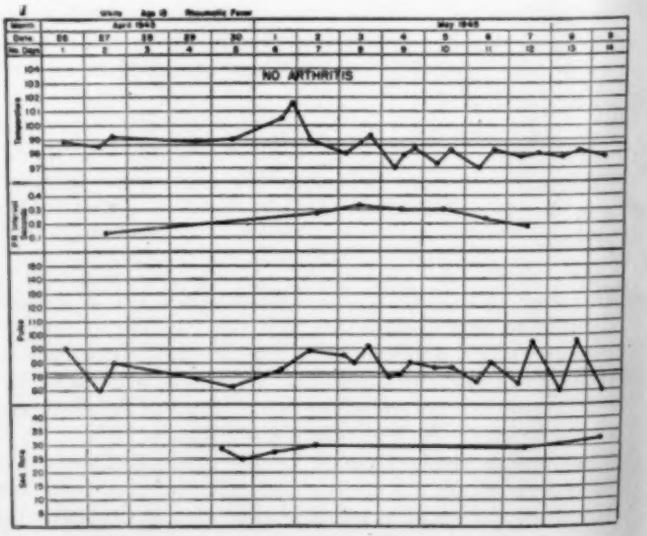

Fig. 3.—Subclinical polycyclic episode. The patient was unaware of fever.

VII. *Atypical Febrile Course in the Observative State.*—Rheumatic fever is not often considered in the differential diagnosis of pyrexia of unknown origin, and it is uncommon for fever to persist as the sole clinical evidence of rheumatic activity. Characteristic temperature charts in rheumatic fever are illustrated in figures 2 and 3. The fever when present is often

remittent, and the daily swings usually vary between 1 and 3 F. Wide swings usually indicate the presence of some other disease. A few cases of chronic active rheumatic fever may show a low grade rise of temperature for weeks, and subclinical reactivations may cause secondary fever of short duration (fig. 3), but the fever

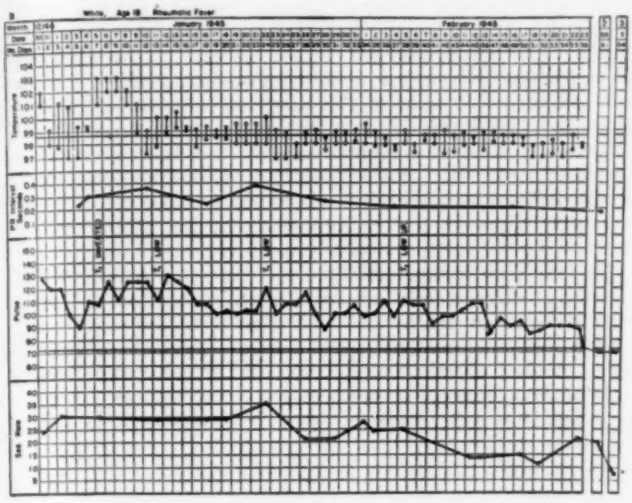

Fig. 4.—Course of rheumatic fever with acute pericarditis.

of the acute phase subsides rapidly. When fever was high or prolonged in our cases pericarditis was usually present (figs. 4 and 5, see also case 7).

Case 4 illustrates the difficulty of diagnosis when articular symptoms are late in appearing and the febrile course is atypical.

CASE 4.—A Negro man aged 19 was admitted to a naval hospital on April 12, 1945. He first had become sick aboard ship on March 2, with headache and a temperature of 103 F. No abnormalities were found on examination, and he had no localizing symptoms. He was given sulfadiazine and penicillin, but the fever persisted. The blood count, urinalysis, blood serum agglutinations and stool cultures were normal. On March 7, five days later, he complained of severe pain in his groins on weight bearing, with tenderness along his adductor muscles. On March 10 his temperature was still variable, between 100 and 102 F., and pain and swelling developed in the metacarpophalangeal joint of the middle finger of the right hand. The pain in his groin, which was presumably due to involvement of his hip joints, had disappeared. The sedimentation rate was 26 mm. in one hour. On March 20, eighteen days after the onset of his fever, he noted redness, swelling and pain in the right wrist. The left wrist, both elbows and the knees were sore but not swollen. The diagnosis of rheumatic fever was made, salicylate therapy was begun and he was transferred to the United States.

On arrival the patient had taken no salicylates for six days. The pains in his joints, which had rapidly subsided with full doses of salicylates, had partially recurred, and he complained of aching and stiffness in his right wrist and elbow. On examination he was afebrile. Examination of the heart gave negative results. The sedimentation rate was 25 mm. in one hour. The electrocardiogram revealed a sinus tachycardia of 126 per minute and a PR interval of 0.22 second. The T waves in leads 1, 2 and 4 were low or diphasic.

The patient was put to bed and given 10 Gm. of salicylates daily. His symptoms cleared rapidly and completely. Sedimentation rates taken twice weekly fell rapidly to normal, the figures being 25, 19, 26, 17, 15, 9, 9 and 7 mm. in one hour on May 8, 1945, less than a month after admission. Another electrocardiogram taken on April 26, two weeks after entry, revealed a PR interval of 0.17 second with a cardiac rate of 90; the T waves in leads 1, 2 and 4 were taller than before but still abnormal. On May 3, three weeks after entry, the PR was 0.16 second and the T waves were normally upright. The patient was allowed up on May 10, 1945 and had no recurrence of symptoms or signs of activity of rheumatic fever.

Case 4 illustrates the diagnostic problem of fever without localizing symptoms which would point to rheumatic fever. The first pain in the joints occurred five days after the onset of fever, but the pain in the groin was not recognized as being related to the involvement of joints. A single finger joint then was involved a few days later, but this symptom subsided quickly. It was not until eighteen days after the onset of the fever that polyarthritis developed and clarified the diagnosis. Electrocardiographic studies might have permitted an earlier recognition of the disease.

VIII. *Association of Rheumatic Fever and Marie-Strümpell Spondylitis.*—It is believed by some observers that Marie-Strümpell spondylitis is a variety of rheumatoid arthritis although a distinct and separate disease. The exact relationship between rheumatoid arthritis and rheumatic fever is not clearly established, and renewed interest has been shown recently in the cardiac observations in the first-named condition. When one sees patients in whom both diseases are present, the concurrence emphasizes the entire problem. We have observed 6 such cases, of which the following is an example.

CASE 5.—A man aged 19 had pain in both feet, ankles and the lower part of the back on Oct. 5, 1945. On salicylate therapy, the ankles improved but his back and feet remained painful. Progressive involvement, despite salicylate therapy, appeared in the knees, shoulder and hips, and these joints were still painful at the time of his arrival at a naval hospital on Nov. 30, 1945. He had lost 15 pounds (6.8 Kg.) and had considerable stiffness of the neck and back in addition to the pain in his peripheral joints.

Examination revealed decided limitation of motion and spasm of muscles in the lower part of the back. The heart was not enlarged, but there was a moderately loud, low-pitched mid-diastolic murmur at the apex. There was also an apical systolic murmur, grade 2. No definite aortic valvular murmurs

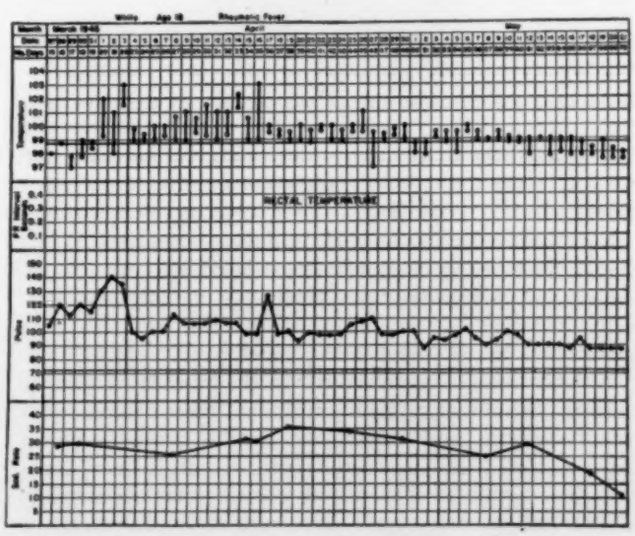

Fig. 5.—Course of rheumatic fever with acute pericarditis.

were heard. To judge from the patient's health record, these murmurs had not previously been present. The sedimentation rate was 27 mm. in one hour. The electrocardiogram was normal. Roentgenographic examination of the sacroiliac joints revealed changes characteristic of spondylitis (fig. 6).

Despite large doses of salicylates, the patient continued to have an elevated sedimentation rate and pains and stiffness in the neck, back, hips and feet, while the electrocardiogram remained normal over a four months period of observation.

The expansion of the chest decreased over a six months period from 2½ inches (6.4 cm.) to 1 inch (2.5 cm.). On Dec. 13, 1945 an early aortic diastolic murmur was heard for the first time, to the left of the sternum in the third interspace. This murmur was transient, and on March 16, 1946 only the mid-diastolic apical rumble was heard.

Case 5 is a rare and interesting example of the coexistence of salicylate-resistant chronic arthritis, of spondylitis proved by the well known roentgenographic findings and of mitral valvulitis and transient aortic insufficiency. This case was the only one observed in which active rheumatoid arthritis and spondylitis coexisted with active carditis and valvulitis and changing murmurs.

IX. *Abdominal and Precordial Pain as the Initial Manifestation.*—Abdominal and precordial pain has frequently been said to dominate the clinical picture in some children with rheumatic fever. In adults, however, these symptoms are usually not prominent and are difficult to evaluate when present. Precordial pain was more commonly present than was abdominal pain in our cases but rarely appeared as the sole symptom. One patient, subsequently shown to have rheumatic

Fig. 6 (case 5).—Sacroiliac arthritis in a patient with rheumatic fever.

fever, had three distinct episodes of abdominal pain and fever of forty-eight hours' duration over a seven week period before typical polyarthritis and carditis appeared.

X. *Onset with Pericarditis and Pneumonitis.*—While rheumatic fever is classically associated with the development of pancarditis, pericarditis is usually not clinically recognizable in most cases, the arthritis and myocardial involvement being most prominent. However, occasionally pericarditis is the dominant clinical feature. Rheumatic pneumonitis has been discussed by recent authors and experience in the armed services has indicated that it is more frequent than formerly was thought. Griffith [4] stated that pneumonitis occurred in 12 per cent of his cases. We believe this figure to be rather high, 2 per cent being about the incidence among the patients observed by us.

Case 6.—A married woman aged 29 entered a naval hospital on July 20, 1944, complaining of chills and fever, of pain in the right upper portion of the thorax on breathing and of vomiting of forty-eight hours' duration. Her past history was uneventful. Examination revealed a temperature of 101.8 F., a pulse rate of 118, and a respiratory rate of 24. The pertinent observations were moderate inflammation of the pharynx, slight generalized tenderness over the abdomen and decreased breath sounds over the right anterior portion of the thorax with a friction rub over the same area. The laboratory data revealed normal urine, a leukocyte count of 21,650 per cubic millimeter of blood, with 72 per cent polymorphonuclear cells, a hemoglobin content of 12 Gm. per hundred cubic centimeters of blood and an erythrocyte count of 4,000,000 per cubic millimeter of blood. The diagnosis on admission was pneumonia and pleurisy. On the second day in the hospital the patient complained of pain across the upper part of the thorax; the fever was unchanged in spite of full doses of sulfadiazine. Roentgenologic examination of the thorax revealed a widened cardiac silhouette with bilateral pleural effusion. Five days after entry, examination revealed muffled heart sounds and a definite pericardial friction rub. Detailed questioning elicited the fact that for several days she had had migratory aching pain in several joints. She did not spontaneously mention these pains.

Therapy with sodium salicylate was begun on July 25. The pericardial friction rub persisted until August 3; the fever rapidly decreased, and by August 7 the temperature was normal. The pleural effusion and pneumonitis rapidly cleared, and the roentgenologic examination of her thorax gave negative results on August 4, except for the enlarged heart shadow. A transient apical systolic murmur, grade 2, became audible in the second week.

An electrocardiogram on July 25 revealed inverted T waves in all leads. These had become normal by August 29. The auriculoventricular conduction time was consistently normal. The sedimentation rate, which was 25 mm. in one hour on entry, persisted at the level of 25 to 35 mm. and slowly diminished until August 29, when it was 7 mm. The patient was then sent home for further convalescence. She was seen again on September 20, when she complained of tightness in her thorax. The electrocardiogram was normal, but the sedimentation rate had increased to 13 mm. in one hour. The heart was normal except for moderate enlargement. She was seen again on Oct. 23, 1944, at which time she made no complaints. Roentgenologic examination showed that the heart and the lungs were essentially normal. The electrocardiogram was normal and the sedimentation rate was 15 mm. in one hour.

Case 6 illustrates the onset of rheumatic fever with pleurisy, pneumonia and pericarditis. Articular findings were absent, and a history of articular pain was elicited only on questioning. The cardiac enlargement and pericardial friction rub provided the evidence which led to the final diagnosis.

Case 7.—A man aged 20 was admitted to the hospital on June 29, 1945 for a submucous resection of the nasal septum. Four days after surgical intervention he had symptoms and signs of acute tonsillitis and sinusitis with a temperature of 103 F. He responded promptly to treatment and was returned to duty. Over the next few days there developed feverishness and substernal pain brought on by leaning forward. On July 16, 1945 the patient was readmitted to the hospital, where physical examination revealed an acutely ill man with fever, tachycardia, pharyngitis and distended cervical veins. The heart was enlarged, and a diastolic gallop and a precordial friction rub were heard. The blood pressure was 114 mm. of mercury systolic and 76 diastolic. Urinalysis was negative. The leukocytes numbered 12,000 per cubic millimeter of blood with 80 per cent polymorphonuclear cells. The sedimentation rate was 25 mm. in one hour. The venous pressure taken in the cubital vein was 20 cm. of water. The throat culture revealed many hemolytic streptococci. The electrocardiogram showed a PR interval of 0.26 second, elevated ST segments in leads 1, 2 and 4, a low T wave in lead 1 and diphasic T waves in leads 2 and 3. The blood culture was negative.

The patient was placed in an oxygen tent and given full doses of salicylates and large doses of penicillin (40,000 units every two hours intramuscularly). His condition continued to be critical for a week. The precordial friction rub was heard daily until July 26. The venous pressure varied between 16 and 20 cm. of water. Roentgenographic examination of

4. Griffith, G. C.: Rheumatic Fever: Its Recognition, California & West. Med. **63**: 119-123 (Sept.) 1945.

the thorax on July 22, 1945 revealed an "enlarged and bulging cardiac silhouette" (fig. 7). The T waves in leads 1, 2 and 4 became inverted; the auriculoventricular block and inverted T waves persisted, and an intraventricular block appeared. At no time did the patient have subjective or objective manifestations of articular involvement. On July 29 an aortic diastolic murmur was heard and a pleural rub appeared in the left axilla, associated with pain on cough and deep respiration. This persisted for several days and gradually subsided. On August 13 pain without visible swelling appeared in the knees and elbows. This persisted for only four days. The improvement of the patient continued progressively, and by August 28 the auriculoventricular conduction had returned to normal although the T waves were still inverted. The sedimentation rate was 18 mm. per hour at this time. The aortic diastolic murmur persisted, but the cardiac shadow gradually decreased in size. The electrocardiogram became normal on September 21, approximately two months after admission. On October 12 the sedimentation rate was 12 mm. in one hour. On November 1 when the patient was transferred to a convalescent hospital roentgenographic examination of the thorax showed slightly generalized cardiac enlargement with normal pulmonary fields. The aortic diastolic murmur was still present.

This most instructive case illustrates the onset of rheumatic fever with pericarditis and pneumonitis. The late transient arthralgia, the persistent aortic diastolic murmur and the classic conduction defects and changes in the T waves confirmed the diagnosis.

XI. *Subclinical Recrudescence.*—The initial diagnosis of rheumatic fever is no more important than the recognition of recrudescence of activity in patients during convalescence or during an inactive period. The cases reported in this paper have illustrated that the

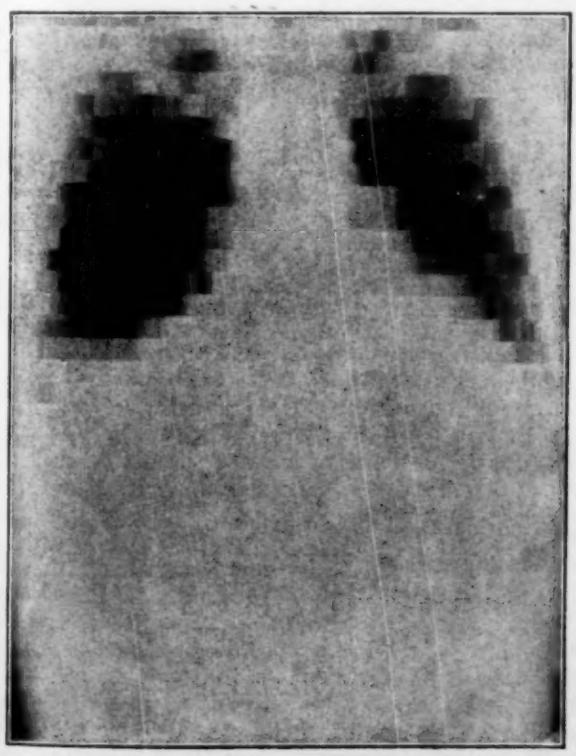

Fig. 7 (case 7).—Cardiac kymogram showing an enlarged and bulging cardiac silhouette and absent cardiac pulsations, typical of acute pericarditis.

rheumatic state manifests itself in different patients in different ways. Fever, elevation of the sedimentation rate, the appearance or reappearance of abnormal electrocardiographic tracings and articular symptoms or signs, all may be present singly or in combination—either in the initial attack or in the recrudescence. In order to observe the earliest evidence of recrudescence it is important to search for all these abnormalities when a patient is first allowed to resume physical activity. No patient should be allowed more than the slightest exertion until all signs of activity (fever, elevated sedimentation rate, pains of joints, rash, nodules, electrocardiographic changes and so forth) have subsided or until further observation reveals that the residual symptoms and signs are nonspecific.

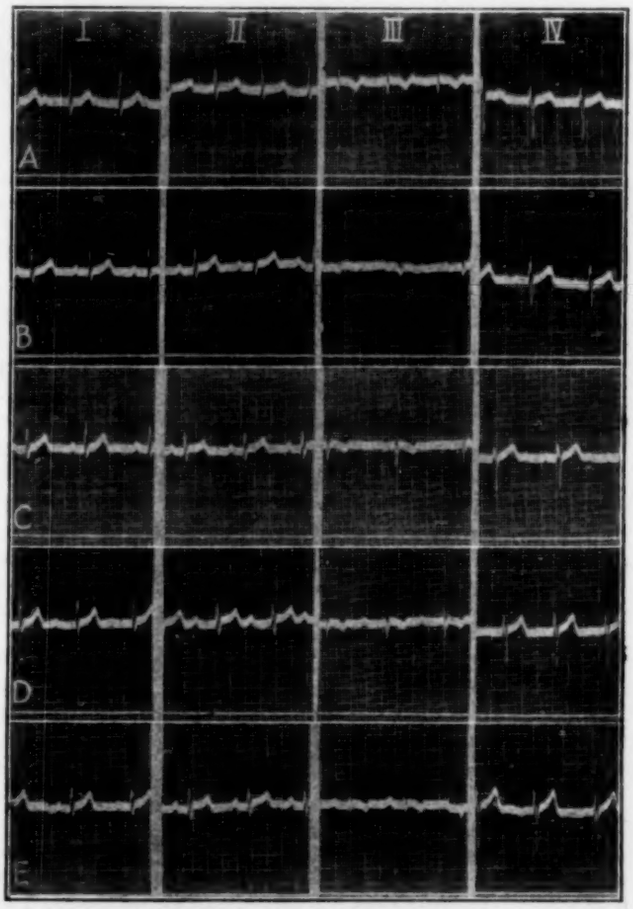

Fig. 8 (case 8).—Subclinical recrudescence when patient first became ambulatory: Feb. 8, 1945 onset of rheumatic fever; *A*, Feb. 21, 1945, temperature 98.4 F., swelling of left hand and sedimentation rate of 15; *B*, Feb. 26, 1945, patient afebrile and asymptomatic, with sedimentation rate of 15; *C*, April 7, 1945, patient afebrile and asymptomatic, with sedimentation rate of 15; *D*, April 21, 1945, patient afebrile and asymptomatic after he had been up a few days on salicylate therapy, and *E*, April 26, 1945, patient in bed, afebrile, with sedimentation rate of 32.

CASE 8.—A man aged 18 had arrived on the west coast on Jan. 16, 1945. A cold had developed on his arrival. He stood watches in the rain and noticed pain in the heels while walking. This pain increased, and a week later he was examined but no abnormalities were noted. He was returned to duty, and on February 8 pain and numbness developed in his right hand. On examination his hand was found to be swollen. He was referred to a naval hospital on February 11.

On arrival it was further elicited that the patient had had occasional aching in his knees and shoulders during the previous ten days, but that pains in his heels and his right hand were most disturbing. He had had scarlet fever in childhood and mastoiditis in 1941.

Examination revealed pain and slight swelling and tenderness of the right metacarpophalangeal joints. The temperature was 98.4 F., the pulse rate was 80, the blood pressure was 132 mm. of mercury systolic and 84 diastolic. The heart was normal, there were no nodules and no rash was present.

The patient was put to bed and given full doses of salicylates. He was afebrile throughout. On February 13, within forty-eight hours of entry, the swelling and most of the tenderness of the

right hand had disappeared. A soft apical systolic murmur developed, and the heart sounds were muffled. The prothrombin time, after two months of daily administration of salicylates, was 89 per cent of normal. His only complaint throughout his illness, after the first forty-eight hours, was weakness.

On April 10, after nearly two months of rest in bed and salicylates, the patient was allowed to get up. His sedimentation rate at that time was 10 mm. in one hour and his electrocardiogram was normal. The administration of salicylates was continued, and he was kept under careful observation. By April 19, his sedimentation rate had risen to 21 mm. in one hour and his PR interval had increased to 0.32 second (fig. 8). He had no fever or joint symptoms and was completely unaware of the flare-up. He was returned to bed, and after five days his partial heart block had disappeared, while his sedimentation rate fell to 9 mm. in one hour within ten days. He remained in bed until the last of May and was then allowed up without further incident.

The flare-up of symptoms after the patient had been allowed to get up stresses the necessity of a careful clinical and laboratory control when the patient first becomes ambulatory. The short duration of the abnormalities of the sedimentation rate and electrocardiogram during the flare-up is noteworthy. The fact that when the disease finally was quiescent the sedimentation rate was 5 mm. in one hour suggests that even when an apparently normal sedimentation rate of 10 or 12 mm. per hour is found the patient should be further observed to see that the lowest level is reached before he is allowed up.

COMMENT

The most important fact noted from a study of our cases is that rheumatic fever may manifest itself and run a clinical course in ways not commonly recognized. Failure to regain complete health or the appearance of symptoms within six weeks of a hemolytic streptococcic infection may indicate the development of rheumatic fever. In our experience, the most valuable criteria for the diagnosis of rheumatic fever in such atypical cases are: (1) arthralgia, (2) evidences of carditis, especially abnormalities in the electrocardiogram, (3) fever and (4) persistent elevation of the sedimentation rate. If evidence suggesting the possibility of rheumatic fever presents itself, one should review the history carefully for pains of joints, dyspnea, palpitation and abdominal or precordial pain; careful, frequently repeated examinations of the heart for significant murmurs, friction rub, diastolic gallop or enlargement should be made, and examination for nodules or cutaneous eruptions should be carried out. Repeated determinations of sedimentation rates and electrocardiograms must be performed to enable one to interpret the significance of any illness during this period. Arthralgia, however mild, occurring after an infection of the upper part of the respiratory tract must be investigated with some thoroughness. Almost all patients subsequently shown to have rheumatic fever had an elevation in the blood sedimentation rates at the time the arthralgia was present. This point may help to separate the arthralgias due to rheumatic fever from those due to other causes. Furthermore, the cases of rheumatic fever in which arthralgia occurred without visible signs of arthritis showed a rapid and complete subsidence of the articular symptoms following rest in bed and salicylate therapy. Additional joints may become involved in the chronic active rheumatic fever group, but the picture of persistent arthralgia of a single joint or set of joints was not that seen in our cases of rheumatic fever.

Postscarlatinal nonsuppurative arthritis must be considered to be identical with rheumatic fever, and the more carefully such patients are studied the more frequently will clinical and electrocardiographic evidences of carditis be found which are indistinguishable from those observed in rheumatic fever.

It is apparent from the foregoing reports of cases that the classic clinical picture of rheumatic fever in young adults is often absent and the diagnosis can be made only after a correlation of all the available data. In all the cases that we have reported, carditis as manifested either by electrocardiographic abnormalities or by transient significant diastolic murmurs, or by both, was present at some stage of the disease, thus confirming the diagnosis. Many similar instances could have been presented, however, in which carditis did not develop but which were nevertheless probably cases of rheumatic fever. Carditis may not be demonstrated in certain patients with rheumatic fever because electrocardiographic abnormalities may be extremely transient or absent, even if early serial records are made. Further, carditis may be absent in some cases of rheumatic fever.[5] The usual clinical signs of carditis were somewhat infrequent in our group of cases. Diastolic gallop, diastolic murmurs and cardiac enlargement were occasionally noted but occurred in only a modest percentage of cases. Cardiac failure was rare. A systolic murmur may appear in any febrile illness and, with the exception of certain long, loud murmurs, is not sufficient clinical proof of active endocarditis. One must rely, therefore, on abnormalities in the electrocardiogram as the most common and useful confirmatory evidence of the presence of myocarditis in the rheumatic fever of young adults.

Response to salicylates in our cases was usually striking, but this has not been considered a reliable criterion for diagnosis because other types of arthritic pain may similarly be relieved by large doses of salicylates.

SUMMARY

1. Observation of a large number of young adults with rheumatic fever indicates clearly that rheumatic fever often manifests itself with atypical clinical features and clinical course.

2. Of the clinical features, the most striking have been: minimal or complete absence of articular symptoms, monarticular involvement, onset with major manifestations in the hands and feet, prodromal aching for days to weeks prior to the onset of acute arthritis, recurrent acute arthritis of short duration with apparently complete subsidence between attacks, absence of fever during the acute stage, onset with fever of obscure origin, association of rheumatic fever and Marie-Strümpell spondylitis, onset with pericarditis and pneumonitis and subclinical recrudescence.

3. The most valuable common criteria for the diagnosis of rheumatic fever in young adults have been (1) arthralgia, (2) evidences of carditis, especially abnormalities in the electrocardiogram, (3) fever and (4) persistent elevation of the sedimentation rate. Other major and minor manifestations of rheumatic fever, such as chorea, nodules, cardiac enlargement, cardiac failure, pericarditis, diastolic and significant systolic murmurs, abdominal and precordial pain, erythema marginatum, epistaxis and pulmonary changes, are much less common.

4. The diagnosis of carditis, the most important major manifestation, has depended largely on significant transient electrocardiographic changes, particularly partial auriculoventricular block and inverted T waves in

5. Parkinson, J.: Rheumatic Fever and Heart Disease, Lancet 2: 657-662 (Nov. 24) 1945.

leads 1, 2 or 4, alone or in combination. Other objective evidences of carditis have been less frequently observed.

5. Continued fatigability, failure to convalesce completely, the continuance or reappearance of low grade fever or the development of arthralgia, however variable and mild, in the weeks following a hemolytic streptococcic respiratory infection, should lead one to suspect the possibility of rheumatic fever. If a patient exhibits these clinical manifestations an appropriate clinical and laboratory investigation should be carried out.

PARA-AMINOBENZOIC ACID THERAPY OF ROCKY MOUNTAIN SPOTTED FEVER

Outline of a Comprehensive Plan of Treatment With Report of Five Cases

SAMUEL F. RAVENEL, M.D.
Greensboro, N. C.

The name Rocky Mountain spotted fever is now obviously geographically incorrect, since this disease has been found in forty-seven of the forty-eight states. Ten years ago 70 per cent of the cases occurred in the Mountain and Pacific states, while in 1945 87 per cent were reported from the Central and Eastern states. Its incidence and importance to public health in the United States are shown by the occurrence of 400 to 560 cases with 90 to 137 deaths each year during the past decade. Formerly it was believed that the eastern variety of Rocky Mountain spotted fever was mild, but in 1944 the mortality in 61 cases from the Rocky Moutain states was 32 per cent and in 241 cases from the South Atlantic states, 25 per cent.

Because of the tremendous area over which the cases occur it is probable that few physicians are afforded the opportunity to treat many patients with Rocky Mountain spotted fever and thus to develop an adequate concept of its management. As a corollary, the treatment of this formidable disease may often be haphazard and unsystematic. This probability is suggested by the occurrence of 20 deaths from Rocky Mountain spotted fever scattered over 16 different counties of Virginia in 1945 and 11 deaths in 11 counties of North Carolina during 1946. The need for a systematic, comprehensive plan of treatment applicable to every case is obvious. Such a plan is presented in this paper.

In the early days the treatment of this disease was symptomatic, which simply enabled the patient to die or recover somewhat more comfortably. Unfortunately, the pathologic changes in the vascular system were so striking and so emphasized in pioneer studies that the dictum was laid down that the parenteral administration of fluids was hazardous. As recently as 1943 Topping [1] wrote ". . . an occasional patient will require an additional amount (of fluids) parenterally. This had perhaps better be given by hypodermoclysis rather than intravenously, as there is some clinical evidence that any intravenous therapy is contraindicated." Martin [2] concluded that "blood transfusions probably also are contraindicated because of the endarteritis. . . . However, if the anemia becomes marked, transfusions may be necessary."

For years some physicians who were forced to battle with this fearful disease each summer were accustomed to administer intravenous fluids and blood transfusions with great freedom and apparently with considerable success. The rationale of these measures was arrived at empirically and as a result of long experience. It seemed that these patients should be, and were, benefited by measures calculated to prevent and overcome the phenomena of dehydration, depletion, anemia and metabolic starvation, which appeared so regularly in this severe disease. Such clinical "battles" sometimes were waged for a month or more, and many desperately ill patients recovered, but the mortality over a period of years averaged about 25 per cent.

It was not until 1944 that the careful studies of Harrell, Venning and Wolff [3] revealed the pathologic physiology of Rocky Mountain spotted fever and explained why properly chosen intravenous supportive therapy was so beneficial. They showed that because of the widespread vascular lesions plus starvation there was a tremendous loss of circulating body fluids and protein, with lowering of the blood chlorides, elevation of the nonprotein nitrogen of the blood and potential or actual development of peripheral circulatory collapse. They suggested that supportive therapy should include adequate amounts of plasma and whole blood in addition to dextrose, salts, vitamins and amino acids and should be controlled by careful laboratory studies. Furthermore, they pointed out that because of the intranuclear location of rickettsias in this disease any therapeutic agent must pass through two cell membranes in order to reach the organisms. This explains, in the opinion of these authors, why Topping's immune rabbit serum [1] appears to be effective only in the first three days of the rash—before many parasites have become established in cells.

The sulfonamide compounds are not only useless but probably harmful in the treatment of this disease. Experimentally, sulfonamide-treated guinea pigs died sooner than the untreated controls.[4] Since the sulfonamide drugs and para-aminobenzoic acid are antagonistic in action, use of the former is contraindicated in patients treated with the latter.

Although rickettsias are reported to be sensitive to penicillin, this agent has proved useless in the treatment of Rocky Mountain spotted fever.

The experimental and clinical background for the use of para-aminobenzoic acid in the treatment of spotted fever dates from 1942. Snyder, Maier and Anderson [5] showed that its oral administration would reduce the mortality of experimental murine typhus in white mice, while Hamilton, Plotz and Smadel [6] found that it would inhibit the growth of both epidemic and murine typhus rickettsias in chick embryos. These investigators and others [7] considered that para-amino-

From the pediatric service of St. Leo's Hospital and the Sternberger Children's Hospital.

1. Topping, N. H.: Rocky Mountain Spotted Fever, M. Clin. North America **27**: 722-733 (May) 1943.

2. Martin, D. W.: Rocky Mountain Spotted Fever in Children, J. Pediat. **16**: 468-472 (April) 1940.

3. Harrell, G. T.; Venning, W., and Wolff, W. A.: The Treatment of Rocky Mountain Spotted Fever, J. A. M. A. **126**: 929-934 (Dec. 9) 1944.

4. Topping, N. H.: Experimental Rocky Mountain Spotted Fever and Endemic Typhus Treated with Prontosil or Sulfapyridine, Pub. Health Rep. **54**: 1143-1147 (June 30) 1939.

5. Snyder, J. C.; Maier, J., and Anderson, C. R.: Report to the Division of Medical Sciences, National Research Council, Dec. 26, 1942.

6. Hamilton, H. L.; Plotz, H., and Smadel, J. E.: Report to the Director of the United States of America Typhus Commission, Dec. 16, 1943.

7. (*a*) Murray, E. S.; Zarafonetis, C. J. D., and Snyder, J. C.: Further Report of Effect of Para-Aminobenzoic Acid in Experimental Tsutsugamushi Disease, Proc. Soc. Exper. Biol. & Med. **60**: 115-117 (Oct.) 1945. (*b*) Zarafonetis, C. J. D.; Snyder, J. C., and Murray, E. S.: Immunity Following Para-Aminobenzoic Acid Therapy in Experimental Tsutsugamushi Disease, ibid. **61**: 240-242 (March) 1946.

benzoic acid interferes in some way with the proliferation of the rickettsial organisms within tissue cells—probably by increasing cellular metabolism. This inhibits the infecting organisms sufficiently to permit the development of a lasting immunity. This hypothesis also explains why para-aminobenzoic acid may be therapeutically effective even late in the course of Rocky Mountain spotted fever, when rickettsias have become not only intracellular but also intranuclear.

Yeomans, Snyder, Murray, Zarafonetis and Ecke [8] treated 20 cases of louse-borne human typhus with para-aminobenzoic acid, with 44 untreated patients as controls. They believed that the course of the disease was favorably modified if the patient was treated in the first week of illness. (In the light of present knowledge both the dosage and the concentration of the drug in the blood were probably too low.)

Anigstein and Bader [9] found para-aminobenzoic acid effective therapeutically in guinea pigs infected with Rocky Mountain spotted fever rickettsias. All the control animals died, while those fed 2 per cent para-aminobenzoic acid in the diet either escaped infection

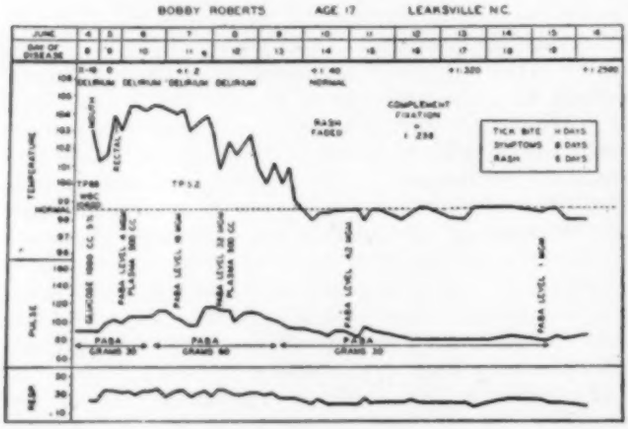

Chart 1 (case 1).—Para-aminobenzoic acid (PABA) therapy in severe case of Rocky Mountain spotted fever.

or recovered from it. Hamilton [10] reported that para-aminobenzoic acid inhibits the growth of spotted fever rickettsias in chick embryos to an even greater extent than it does the growth of typhus rickettsias. Rose, Duane and Fischel [11] treated a 46 year old woman suffering from moderately severe spotted fever with para-aminobenzoic acid. She recovered with great rapidity. Maroney and Davis [12] reported the dramatic recovery of a 3 year old child in whose case treatment with para-aminobenzoic acid was begun on the twelfth day of severe spotted fever.

Murray, Zarafonetis and Snyder [7a] found that para-aminobenzoic acid protected 100 per cent of gerbils (small South African rodents) from multilethal doses of Rickettsia orientalis, the causative organism of tsutsugamushi disease (scrub typhus). Tierney [13] treated 18 cases of severe human tsutsugamushi disease with large doses of para-aminobenzoic acid. Blood levels of 30 to 60 mg. per hundred cubic centimeters were maintained. He concluded that para-aminobenzoic acid is an effective therapeutic agent in this disease.

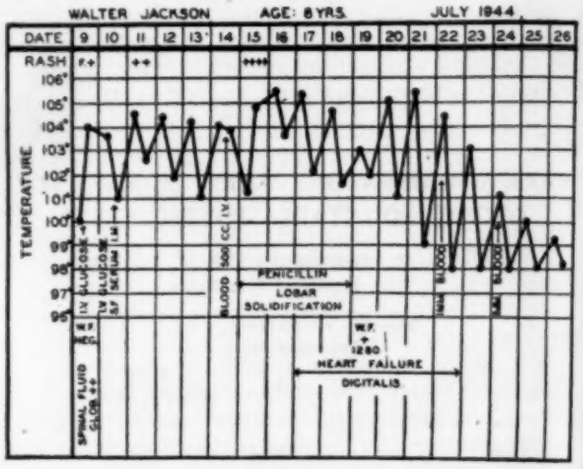

Chart 2 (W. J.).—Moderately severe case of Rocky Mountain spotted fever in 8 year old boy; treatment prior to para-aminobenzoic acid.

Smith [14] reported 29 patients with endemic typhus treated with moderate doses of para-aminobenzoic acid. In his opinion they recovered more rapidly than untreated control cases. (It is probable that better results would have been achieved with larger doses of the drug.)

REPORT OF CASES

Case 1.—*History.*—B. R., a white boy aged 17, entered St. Leo's Hospital June 4, 1946 with a history of tick bite, headache and malaise for eight days, fever and chills for seven

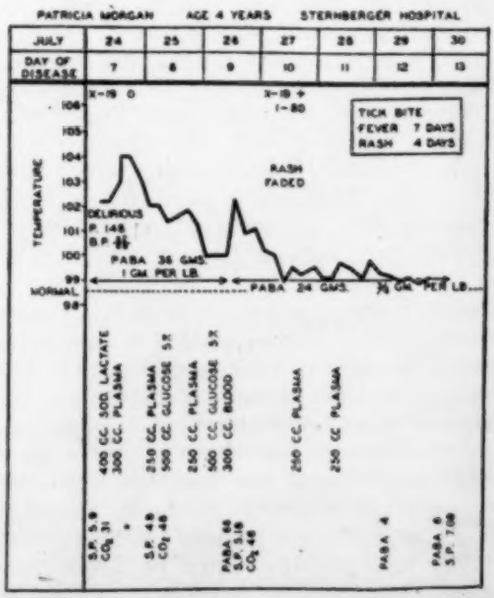

Chart 3 (case 2).—Para-aminobenzoic acid therapy in severe case of Rocky Mountain spotted fever.

days, rash for six days and delirium for two days before admission.

8. Yeomans, A.; Snyder, J. C.; Murray, E. S.; Zarafonetis, C. J. D., and Ecke, R. S.: The Therapeutic Effect of Para-Aminobenzoic Acid in Louse Borne Typhus Fever, J. A. M. A. **126**: 349-356 (Oct. 7) 1944.

9. Anigstein, L., and Bader, M. N.: Para-Aminobenzoic Acid: Its Effectiveness in Spotted Fever in Guinea Pigs, Science **101**: 591-592 (June 8) 1945.

10. Hamilton, H. L.: Effect of Para-Aminobenzoic Acid on Growth of Rickettsiae and Elementary Bodies, with Observations on Mode of Action, Proc. Soc. Exper. Biol. S. Med. **59**: 220-226 (June) 1945.

11. Rose, H. M.; Duane, R. D., and Fischel, E. E.: The Treatment of Spotted Fever with Para-Aminobenzoic Acid, J. A. M. A. **129**: 1160-1161 (Dec. 22) 1945.

12. Maroney, J. W., and Davis, H. C.: Rocky Mountain Spotted Fever: A Case Treated with Para-Aminobenzoic Acid, Delaware State M. J. **18**: 104-106 (May) 1946.

13. Tierney, N. A.: Effect of Para-Aminobenzoic Acid in Tsutsugamushi Disease, J. A. M. A. **131**: 280-285 (May 25) 1946.

14. Smith, P. K.: The Use of Para-Aminobenzoic Acid in Endemic (Murine) Typhus, J. A. M. A. **131**: 1114-1117 (Aug. 3) 1946.

Physical Examination.—Examination revealed a delirious, dehydrated boy with the classic hemorrhagic rash of Rocky Mountain spotted fever, conjunctivitis, palatal enamthem and slight scrotal edema. The serum protein concentration was 6.6 Gm. per hundred cubic centimeters.

Treatment.—An adequate fluid intake was maintained by the oral route supplemented by intravenous injections. Vitamin B complex and ascorbic acid were given intramuscularly. Four grams of sodium chloride were included in the daily diet. Plasma and blood were given on several occasions. Para-aminobenzoic acid (PABA), 2.5 Gm. in 25 cc. of a 5 per cent solution of sodium bicarbonate was given by mouth every two hours for the first two days. The blood concentration of para-aminobenzoic acid was only 4 mg. per hundred cubic centimeters at the end of this time. Accordingly, the dosage was increased to 5 Gm. every two hours in 50 cc. of a solution of sodium bicarbonate. In twenty-four hours the blood level was 18 mg., and a day later 32 mg., per hundred cubic centimeters. The temperature dropped sharply on the fifth day, reached normal on the sixth day and remained there. The rash faded with great rapidity on the sixth day, the sensorium cleared overnight and the boy was practically well. The Weil-Felix agglutination test with Proteus OX 19 was positive in a dilution of 1:2,560 on June 16, and the complement fixation reaction was positive for Rocky Mountain spotted fever in a dilution of 1:256 on June 12.

In comparison with experience with Rocky Mountain spotted fever in the past, this was a brilliant therapeutic result in a rather severe case. Ordinarily this boy might have been expected to be extremely sick for two to three weeks. The course of extremely severe and moderately severe cases treated prior to para-aminobenzoic acid therapy are shown in charts 2 and 4.

CASE 2.—*History.*—P. M.,[15] a white girl aged 4, was admitted to the Sternberger Children's Hospital July 24, 1946 with a history of tick bite, high fever and chills for seven days and rash and delirium for four days.

Physical Examination.—The child appeared to be extremely ill; she was delirious, dehydrated and incoordinate; she breathed rapidly and deeply. The pulse rate was 148 and blood pressure 82 systolic and 60 diastolic. There was a generalized hemorrhagic macular rash, which was most intense on the face, buttocks and extremities, and a palatal enamthem. The spinal fluid was normal chemically and cytologically. The carbon dioxide combining power of the blood was 32 volumes per cent, the serum protein level was 5.9 Gm. per hundred cubic centimeters and the Widal reaction and agglutination against Proteus OX 19 were negative.

Treatment.—Dehydration and acidosis were rapidly overcome with the administration of sixth-molar sodium lactate and dextrose in lactate-Ringer's (Hartman's) solution parenterally. She was given 3 Gm. of para-aminobenzoic acid every two hours by mouth (1 Gm. per pound [0.5 Kg.] of body weight per twenty-four hours) and adrenal cortical extract, vitamin B complex, ascorbic acid and vitamin K parenterally. Plasma and blood were administered at appropriate intervals. Defervescence began the third day and was complete on the fourth. The rash faded with great rapidity after the fourth day, in striking contrast to its usual course in severe Rocky Mountain spotted fever. Ordinarily in this condition the rash becomes progressively more intense, widespread and hemorrhagic for at least two weeks.

15. This case is reported through the courtesy of Dr. Roy M. Smith, Greensboro, N. C.

This also may be described as a brilliant therapeutic triumph in an exceedingly ill child whose febrile fastigium in the pre-para-aminobenzoic acid era would probably have exceeded two weeks in duration. It is worthy of note that this patient was already in acidosis on admission and that without adequate laboratory control this factor alone might have become extremely serious. The blood level of para-aminobenzoic acid was 66 mg. on the third day and 54 mg. per hundred cubic centimeter on the fourth day after the dose had been decreased to 2 Gm. every two hours.

CASE 3.—*History.*—F. W., a white girl aged 10, entered the Sternberger Children's Hospital Aug. 10, 1946 with a history of tick bite two weeks before, headache, chills, high fever and backache for seven days and rash and inconstant delirium for five days before admission.

Physical Examination.—Positive observations on physical examination were: dehydration; the typical hemorrhagic rash of Rocky Mountain spotted fever, involving the entire body but with maximum intensity on the extremities; conjunctivitis; strawberry tongue; moderate edema; positive Brudzinski and Kernig's signs, and a rapid pulse. The spinal fluid yielded normal cytologic and chemical findings, and urinalysis and the blood count were also negative, as was agglutination against Proteus OX 19. The serum protein level was 5.76 Gm. per hundred cubic centimeters.

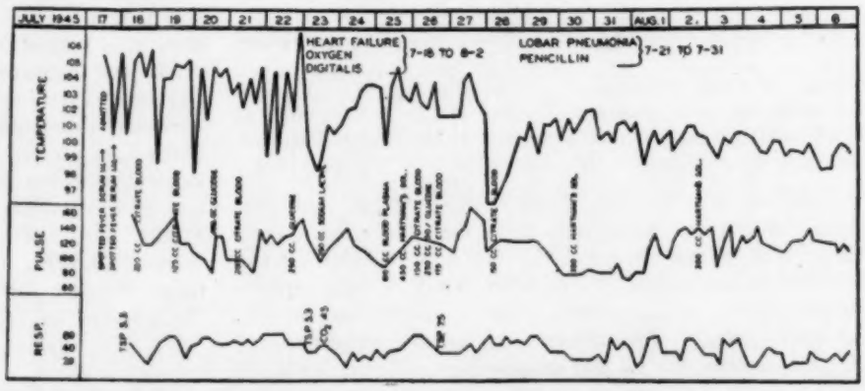

Chart 4 (R. L. P.).—Extremely severe case of Rocky Mountain spotted fever in 1 year old boy; treatment prior to para-aminobenzoic acid.

Treatment.—Intravenous dextrose in lactate-Ringer's solution and plasma were given in adequate amounts, and a high intake of vitamins A and B complex, ascorbic acid and vitamins D and K was maintained. Six grams of para-aminobenzoic acid was given on admission, and then 3 Gm. was given every two hours, with 10 cc. of a chilled solution of 5 per cent sodium bicarbonate per gram. The carbon dioxide combining power of the blood was 32 volumes per cent on the second day and 52 on the third. The temperature dropped to normal and the rash began to fade rapidly on the third day. The patient was practically well at the end of a week. There was a weight loss of 6 pounds (2.7 Kg.) in six days—obviously from loss of edema fluid. Blood obtained on the ninth day agglutinated Proteus OX 19 in a dilution of 1:320 and gave a positive complement fixation for Rocky Mountain spotted fever in a dilution of 1:512.

This appeared to be an excellent result in a moderately severe case of the disease.

CASE 4.—*History.*—L. S., a white girl aged 3, was admitted to the Sternberger Children's Hospital Aug. 9, 1946, complaining of fever and chills for four days, rash for three days and vomiting for one day.

Physical Examination.—The child looked sick but was conscious and not dehydrated. There was a generalized pink macular and papular rash, most intense on the extremities and

buttocks and present on the palms and soles. The remainder of the examination revealed essentially normal conditions.

Treatment.—The child was given an adequate amount of fluids and vitamins and 3 Gm. of para-aminobenzoic acid every two hours. The temperature dropped to normal in twenty-four hours, and the rash faded. The administration of para-amino-

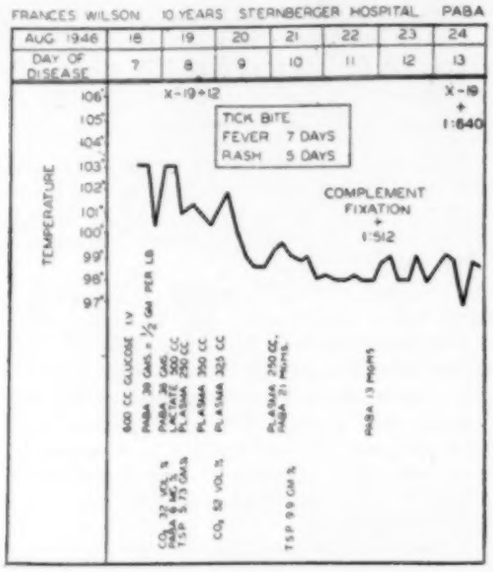

Chart 5 (case 3).—Excellent result with para-aminobenzoic acid therapy.

benzoic acid was discontinued on the fifth day. On that day her blood serum agglutinated Proteus OX 19 in a dilution of 1:640 and the complement fixation test for Rocky Mountain spotted fever was positive in a dilution of 1:32.

This was a mild case of the disease which, however, under treatment with para-aminobenzoic acid terminated with astonishing speed. By way of contrast the chart is shown (chart 7) of a boy (before para-aminobenzoic acid) with spotted fever so mild that he had no trace of rash. Defervescence was not complete until the fourteenth day of the disease.

CASE 5.—*History.*—F. W., a white girl aged 5, entered the Sternberger Children's Hospital June 26, 1946 with a history of tick bite, fever and chills for six days, rash for four days and vomiting and delirium for two days.

Physical Examination.—The child appeared to be decidedly ill, was dehydrated and delirious. There was a fine hemorrhagic rash all over the body, most intense on the face and extremities and present on the palms and soles. Conjunctivitis, a coated tongue and a pulse rate of 160 were noted. The heart and liver were not enlarged.

Treatment.—A solution of dextrose in lactate-Ringer's solution and amigen was given intravenously; vitamins A and B complex, ascorbic acid and vitamins D and K were furnished in large amounts, and para-aminobenzoic acid, 2 grams per pound (0.5 Kg.) (5 Gm. every two hours in 40 cc. of a 5 per cent solution of sodium bicarbonate), was prescribed. After twelve hours there was considerable abdominal distention, which was attributed to the sodium bicarbonate. Accordingly, for the next twelve hours the dosage of this was reduced to 40 cc. of 2.5 per cent solution for each 5 Gm. of para-aminobenzoic acid. The next morning the clinical impression of acidosis was proved correct by a blood carbon dioxide combining power of 31 volumes per cent. The level of para-aminobenzoic acid in the blood was 65 mg. per hundred cubic centimeters. Acidosis was corrected with sodium lactate solution and the dosage of para-aminobenzoic acid reduced to 2 Gm. every two hours. The next morning the blood level was 120 mg. per hundred cubic centimeters, and administration of the drug was stopped. That evening the child went into a virtual collapse. The serum protein level, which had been 6.4 Gm. on admission, was found to be only 3 Gm. per hundred cubic centimeters. She was given 25 Gm. of serum albumin (obtained by courtesy of Dr. George Harrell) intravenously and later given plasma in large amounts. On the fifth day the para-aminobenzoic acid blood level was 80 mg., the serum protein level 5.38 Gm. per hundred cubic centimeters, and the temperature normal, but the child looked sick and was delirious. That evening fever and signs of cardiac failure developed, and by the next morning lobar solidification was present in the right lung. The para-aminobenzoic acid blood level was found to be zero. Para-aminobenzoic acid, 0.75 Gm. per pound (0.5 Kg.) of body weight, digitalis and penicillin were given. After four days of high fever the para-aminobenzoic acid level was 30 mg. per hundred cubic centimeters, and the dose was increased to 1 Gm. per pound (0.5 Kg.). The temperature dropped to normal in three days, and the child went on to an uneventful recovery. Blood obtained July 10 agglutinated Proteus OX 19 in a dilution of 1:320 and showed complement fixation which was positive in a 1:4 dilution for Rocky Mountain spotted fever.

This case was improperly handled in several respects: (1) too much para-aminobenzoic acid was given, and intoxication resulted; (2) too little sodium bicarbonate was used to buffer the para-aminobenzoic acid, with the result that acidosis was produced, and (3) the administration of para-aminobenzoic acid was stopped too soon, the level of the drug in the blood fell to zero overnight and a relapse with heart failure and pneumonia developed. When proper amounts of the drug were then given, rapid recovery ensued. Reliance was placed on the intravenous injections of amino acids to maintain adequate protein levels, although Harrell, Venning and Wolff [3] pointed out that this measure alone may not raise the blood protein concentration, since the ability of the liver to synthesize protein is often impaired in this disease. In spite of the administration of apparently adequate amounts of amino acids the serum protein level fell to 3 Gm. per pound (0.5 Kg.), circulatory failure supervened and only prompt administration of serum albumin and plasma averted a catastrophe.

COMMENT

In none of these patients was any difficulty encountered in the administration of the para-aminobenzoic acid, but gavage may be necessary in unconscious patients. The drug was given in a cold 5 per cent solution of sodium bicarbonate. Acidosis developed in

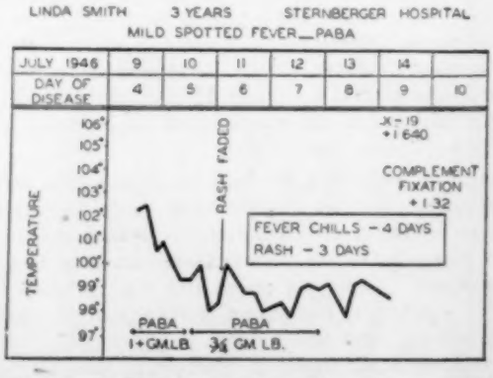

Chart 6 (case 4)—Mild case of Rocky Mountain spotted fever with para-aminobenzoic acid therapy.

1 patient whose dose of para-aminobenzoic acid was too great (3 Gm. per pound [0.5 Kg.] of body weight) and was not adequately buffered with sodium bicarbonate solution. White blood cell counts were made at frequent intervals on every patient, but in no instance did leukopenia develop. The impression was

obtained that abdominal distention and some degree of delirium were possibly due to the para-aminobenzoic acid. Several patients continued to be irrational after becoming afebrile, and in each instance the sensorium cleared as soon as the administration of para-aminobenzoic acid was stopped.

The striking thing about these patients was the amazing speed with which the temperature dropped, the rash faded and recovery ensued, as soon as adequate concentrations of para-aminobenzoic acid in the blood were achieved.

TREATMENT PLAN

The following comprehensive plan, summarized in the accompanying table, is proposed for the treatment of Rocky Mountain spotted fever:

1. The fluid and electrolyte balance should be restored to normal by means of intravenous injections of dextrose in saline or lactate-Ringer's solution. It should then be maintained at the normal level by the oral intake of fluids and added sodium chloride. It has been pointed out by Harrell, Venning and Wolff [3] that intravenous injections of electrolytes in solution in a patient whose serum protein is too low will serve only to produce more edema and, possibly, circulatory failure with pulmonary edema.

Comprehensive Plan for the Treatment of Rocky Mountain Spotted Fever

1.—Restore and maintain fluid and electrolyte balance with dextrose and saline or lactate-Ringer's solution.

2.—Correct acidosis with one-sixth molar sodium lactate.

3.—Maintain protein level with high protein diet, plasma, serum albumin and blood.

4.—Furnish vitamin needs with vitamins A, C, D, K and B complex (liver failure).

5.—Give para-aminobenzoic acid (PABA), 0.5 to 1 Gm. per pound (0.5 Kg.) of body weight per day, depending on the patient's size; at two hour intervals; buffer it with 10 cc. of chilled 5 per cent solution of sodium bicarbonate per gram; determine the blood level of the drug daily if possible; levels of 30 to 60 mg. per hundred cubic centimeters desirable; 60 to 80 mg. may be necessary; above 80 mg. are hazardous.

6.—Watch for possible toxic effects of para-aminobenzoic acid: acidosis, leukopenia, abdominal distention and delirium.

7.—Be on the alert for complications: heart failure (digitalis), pneumonia (penicillin usually no good) or encephalitis.

8.—Adequate laboratory studies are virtually a necessity.

9.—A soluble salt of para-aminobenzoic acid for parenteral injection is desirable.

2. Acidosis should be corrected by intravenous and subcutaneous injections of sixth-molar sodium lactate solution in appropriate dosage.

3. The serum protein level of the blood, depleted in this disease by starvation, vascular damage and hepatic failure, should be restored to normal by intravenous injections of plasma (and, in emergencies, of serum albumin). This level should be maintained by further injections of plasma at appropriate intervals and by a high protein diet (fed by gavage if necessary). If anemia develops, transfusion of blood should be given freely.

4. A high intake of vitamins should be furnished by mouth, by gavage or by the parenteral route if necessary. Thiamine is given to help prevent shock, ascorbic acid to obviate endothelial damage to blood vessels, vitamins B complex and K for damage to the liver and for increased prothrombin time.

5. Para-aminobenzoic acid, 0.5 to 1 Gm. per pound (0.5 Kg.) of body weight per day, is given, depending on the size of the patient. Small children get 1 Gm. per pound (0.5 Kg.); large children get half this much; the children of intermediate size get about 0.75 Gm. This is partially buffered with 10 cc. of a 5 per cent solutiion of sodium bicarbonate per gram in order to prevent acidosis and nausea and is given at two hour intervals. The drug is excreted with such rapidity that its administration at two hour intervals is essential in order to maintain an adequate concentration of it in the blood and tissues. The blood level should be estimated [13] each day at approximately the same time with reference to a dose of the drug. A level of 30 to 60 mg. per hundred cubic centimeters is desirable; a level of 60 to 80 mg. may be necessary to obtain the best results; concentrations above 80 mg. may be hazardous. Administration of the drug is usually continued for several days after the temperature has returned to normal.

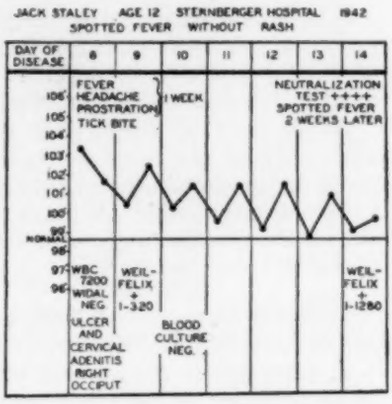
JACK STALEY AGE 12 STERNBERGER HOSPITAL 1942
SPOTTED FEVER WITHOUT RASH
DAY OF DISEASE
8 9 10 11 12 13 14
FEVER HEADACHE PROSTRATION TICK BITE
1 WEEK
NEUTRALIZATION TEST ++++ SPOTTED FEVER 2 WEEKS LATER
WBC 7200 WIDAL NEG
WEIL-FELIX + 1-320
WEIL-FELIX + 1-1280
ULCER AND CERVICAL ADENITIS RIGHT OCCIPUT
BLOOD CULTURE NEG.

Chart 7 (J. S.)—Mild case of Rocky Mountain spotted fever without rash in boy aged 12; treatment prior to para-aminobenzoic acid.

6. The possible toxic effects of para-aminobenzoic acid should be watched for: acidosis, leukopenia, abdominal distention and delirium. If the white blood cell count falls below 3,000 the administration of para-aminobenzoic acid should be discontinued. Tympanites and delirium occur fairly frequently but are probably of little importance.

7. The complications of Rocky Mountain spotted fever should be carefully looked for: congestive cardiac failure (for which oxygen and digitalis in full doses are helpful); pneumonia (usually lobar, probably rickettsial, often not helped by penicillin, which should always be given); encephalitis, and thrombophlebitis. The cardiac failure is usually reversible, and when recovery occurs it is complete.

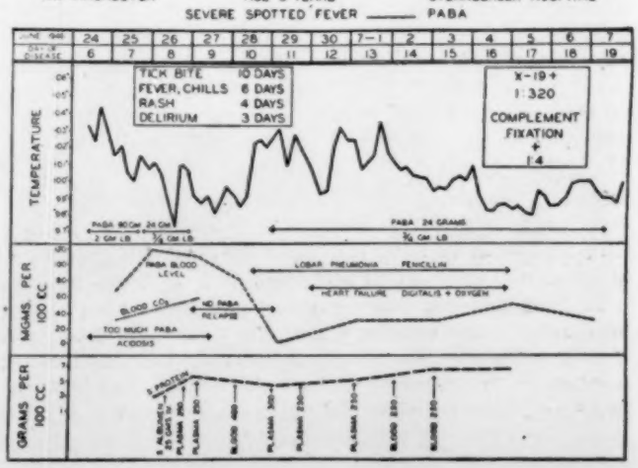

Chart 8 (case 5).—Severe case of Rocky Mountain spotted fever with para-aminobenzoic acid therapy.

8. It is possible but difficult to treat these patients without adequate laboratory control. Frequent determinations of the carbon dioxide combining power and the serum protein and para-aminobenzoic acid levels of the blood are virtually a necessity, while determinations of the nonprotein nitrogen and chloride blood levels and of the prothrombin time may be valuable aids.

9. It would be extremely helpful if a soluble preparation of para-aminobenzoic acid were available for parenteral injection in order to rapidly initiate treatment in the unconscious or vomiting patient.

10. It must be emphasized that para-aminobenzoic acid alone is not the sole answer to this therapeutic problem but constitutes an extremely important specific adjuvant comparable to insulin in diabetic coma or sulfadiazine in meningococcic septicemia and bacillary dysentery.

CONCLUSIONS

1. Rocky Mountain spotted fever is a common, serious and often fatal disease in this country.

2. Intelligently chosen and properly controlled supportive therapy is extremely helpful.

3. When para-aminobenzoic acid in adequate dosage is combined with proper supportive therapy, a rapid and brilliant therapeutic triumph is achieved.

4. The results obtained in 5 patients with Rocky Mountain spotted fever treated with this drug suggest that deaths from this fearful disease may be practically eliminated by such combined therapy.

371 North Elm Street.

INTESTINAL TUMORS OF DYSENTERIC ORIGIN

DANIEL N. SILVERMAN, M.D.
and
ALAN LESLIE, M.D.
New Orleans

In any general discussion of intestinal tumors it is proper that principal attention be paid to the malignant neoplasms, which constitute the majority of such tumors. Almost all of these are confined to the colon, arising from tissue of ectodermal origin. It is common knowledge that such malignant tumors may arise in the small intestine as well, although these are rare. Benign tumors of ectodermal origin, such as polyps, are again common in the colon and rare in the small intestine. Malignant neoplasms of mesodermal origin are far fewer than carcinomas and are about equally frequent in small and large intestine. Benign mesodermal tumors are rare and seem to have a predilection for the upper and lower ends of the small intestine.

Although inflammatory intestinal tumors have not been recognized with any frequency until recent years, Virchow [1] as early as 1853 described inflammatory tumors or "pseudotumors" of the bowel, and Moynihan [2] and Mayo-Robson [3] published case reports of such lesions in 1907 and 1908, respectively. If intraperitoneal collections of pus undergoing organization are excluded, these tumors are almost invariably of a granulomatous nature. Tuberculosis is perhaps most commonly responsible for tumors of this type and can cause their formation anywhere in the small or large intestine, the ileocecal region being their site of predilection. Other infectious granulomas of more or less classic nature related to the intestinal tract have been extensively described as occurring in the course of lymphogranuloma inguinale, actinomycosis, blastomycosis, syphilis and anthrax.[4] Occasionally there is evoked a granulomatous response to the presence of a foreign body lodged in or apposite to the intestinal wall. Impairment of local intestinal vascularity following the repair of strangulated hernias has been described as underlying an inflammatory response characterized by the formation of a granuloma. In all these instances a specific nature of the granuloma is demonstrable. Granulomas have been described as occurring after simple, penetrating, isolated or solitary ulcers of the colon or terminal ileum. From the nature of the pathologic process it is reasonable to surmise that a specific cause existed but was not demonstrated in many of these instances. "Hyperplastic appendicitis" and "typhlitis" have even been presented as causes of ileocecal granulomas.[4a]

An interesting group of nonspecific granulomas has come to light with the advancing knowledge of nonspecific inflammatory intestinal diseases. The formation of polyps of the colon is a common outcome of the competition between destruction and repair in the course of nonspecific ulcerative colitis. A slight variation in the homeostatic response may result in the formation of typical inflammatory granulomas, which can appear anywhere in the colon. Ileocecal tumor is an occasional accompaniment of regional enteritis,[5] a disease in which there is also a parallelism of destruction and regeneration. When the pathologic process extends across the ileocecal sphincter, as it does when the disease takes the form of an ileocolitis, the picture is indistinguishable from that which occurred in a case of bacillary infection to be reported later in this paper.

In the present paper we are reporting 6 cases of inflammatory intestinal tumors of specific nature occurring as a complication of amebic or bacillary involvement of the intestine. The occurrence of such tumors in the course of amebiasis are receiving an increased amount of attention because of the heightening consciousness of the high prevalence of amebiasis in this country and because of the therapeutic implications which depend on the differentiation of these from malignant colonic neoplasms. Amebic granulomas, occurring as they do only in the colon, cannot be distinguished radiologically from cancer. In fact, in most of the cases hitherto described and 2 of those to be here reported the patients were subjected to unnecessary laparotomy because of the preoperative diagnosis of colonic neoplasm. Intestinal obstruction with or without a preceding history of diarrhea, inanition, perhaps a palpable abdominal mass and roentgenographic demonstration of an obstructing lesion of the colon constitute diagnostic pitfalls which can deceive all but the most wary. Since there is such variation in therapy and prognosis, it is doubly important to distinguish these amebic granulomas from malignant tumors.

From the Southern Baptist Hospital and Lakeshore Hospital.
Read before the Section on Gastro-Enterology and Proctology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

1. Virchow, R.: Arch. f. path. Anat., 1853.
2. Moynihan, B. G. A.: Mimicry of Malignant Disease in the Large Intestine, Edinburgh M. J. **21**: 228-236, 1907.
3. Mayo-Robson, A. W.: An Address on Some Abdominal Tumours Simulating Malignant Disease, and Their Treatment, Brit. M. J. **1**: 425-428 (Feb. 22) 1908.
4. (*a*) McMillan, F. L.: Ileocecal Granulomas, Illinois M. J. **81**: 15-20 (Jan.) 1942. (*b*) Fouser, R. H.: Chronic Inflammatory Tumors of Ileocecal Segment, Am. J. Surg. **49**: 124-128 (July) 1940. De Abreu Campanario, M.: Inflammatory Tumors: Roentgen Study, An. paulist de med. e cir. **42**: 119-133 (Aug.) 1941.
5. Cave, H. W.: Inflammatory Lesions of Small Intestine: Surgical Aspects, J. A. M. A. **127**: 456-458 (Feb. 24) 1945. Crohn, B. B.; Ginzburg, L., and Oppenheimer, G. D.: Regional Ileitis; Pathologic and Clinical Entity, ibid. **99**: 1323-1329 (Oct. 15) 1932.

We wish to call special attention to 1 case of ileocecal inflammatory tumor occurring in bacillary dysentery and 1 such tumor in combined amebic and bacillary disease. Although the occurrence of inflammatory tumors in the course of chronic bacterial dysentery is admittedly rare, bizarre manifestations of this protean disease are to be

Fig. 1 (case 1).—Barium enema showing ileocecal tumor.

anticipated, and such cases may be expected to occur with greater frequency in the future. This statement is made in view of the present widespread dissemination of infection due to Bacterium dysenteriae throughout the United States, as foreseen by Silverman[6] in his early report of cases from the South in 1926.

REPORT OF CASES

CASE 1.—A. R., a white man aged 19, was seen in 1942 with a one year history of cramplike lower abdominal pain, constipation and intermittent chills and fever. An appendectomy had been performed when the patient was 6 years of age. His mother had died of Hodgkin's disease.

Physical examination revealed essentially normal conditions. Proctosigmoidoscopy disclosed a reddened mucosa and spastic musculature but no ulceration or bleeding points. Barium enema showed a large filling defect involving the cecum and the ascending colon (fig. 1). Serial interval roentgenologic studies of the small intestine showed a constant irregular narrowing of the terminal 5 cm. of the ileum, with possible fistulous tracts between this segment of the ileum and the cecum. Culture of the stool resulted in the isolation of an organism of the Bacterium flexneri group.

A course of vaccine therapy was instituted and, along with dietary and supportive management, was continued for three months, at which time the barium enema examination was repeated. Except for an increase in the stricture at the ileocecal level the observations were similar to those previously described. Because of this failure to improve with medical management a one stage resection of the tumor was performed, with anastomosis of the ileum to the transverse colon. Microscopic examination of the tumor showed granulomatous inflammation. After the operation the patient made an uneventful recovery, and he has been asymptomatic ever since.

CASE 2.—M. H., a white man aged 51 with a past history of acute nephritis following yellow fever at age 18 and typhoid fever at age 21, which was complicated by cholecystitis, leading to a cholecystectomy six years later. A duodenal ulcer was diagnosed clinically and roentgenologically at age 41. Roentgen examinations over a sixteen year period continued to show the duodenal deformity.

The present illness was of short duration and marked only by intermittent rectal bleeding. Rectal examination revealed infiltration of the rectal wall, and proctoscopy showed, in addition to numerous ulcers in the rectum and sigmoid, an ulcerated tumor mass about 1 inch (2.5 cm.) in diameter, 3 inches (7.6 cm.) above the anus. Vegetative forms of Endameba histolytica were seen on direct smears.

Therapy with emetine hydrochloride and Diodoquin resulted in the disappearance of symptoms and the complete regression of all lesions.

Since his recovery from the amebic infestation the patient has been treated medically for intermittent symptoms attributable to his chronic duodenal ulcer.

CASE 3.—A. B. was a white man aged 25, recently discharged from the Army, with a two and one-half year history of intermittent abdominal pain, which radiated from the epigastrium to the suprapubic region, and which was aggravated by most foods but not by milk, and was relieved by alkali. Examinations after a barium meal and enema which were performed while the patient was in the Army were said to have been negative. An appendectomy was performed but did not bring any relief. Intermittent diarrhea was noted for the last two years, and streaks of blood were seen in the stool six months before the patient's admission to the hospital.

Fig. 2 (case 3).—Barium enema showing large ileocecal filling defect.

Physical examination revealed essentially normal conditions except for the presence of a hard, slightly tender, irregular mass in the right lower quadrant, in the line of the cecum, about 4 cm. in width and 10 cm. in length. Rectal examination revealed normal conditions. Proctosigmoidoscopy repeated several times did not show any mucosal abnormality. Examination

6. Silverman, D. N.: Chronic Bacillary Dysentery, M. Clin. North America **9**: 1167-1171 (Jan.) 1926. The Increasing Incidence of Bacillary Dysentery, editorial, J. A. M. A. **121**: 1158 (April 3) 1943.

of the saline-purged stool failed to show the presence of E. histolytica. Culture of this stool resulted in the isolation of Bacterium shigae. Examination of the colon by means of a barium enema revealed a "large, irregularly annular, filling defect of the cecum and proximal ascending colon, sharply demarcated from the apparently normal distal gut" (fig. 2). The terminal few centimeters of the ileum were apparently involved by the same process.

Fig. 3 (case 5).—Barium enema showing tumor of cecum.

With resection of the tumor in view, an ileotransverse colostomy was performed. At laparotomy the cecum presented itself as a hard, movable mass, and the postoperative surgical diagnosis was carcinoma. Section of an iliac node biopsy showed inflammation. The terminal ileum appeared to be inflamed and was continuous with the mass. The patient ran a stormy postoperative course marked by intestinal obstruction, for which an ileostomy was done, sepsis and death on the forty-first postoperative day.

Autopsy revealed the mass as described, a section of which showed trophozoites of E. histolytica and multiple amebic abscesses of the liver. Culture of material from the tumor and from the abscesses failed to demonstrate B. shigae.

Case 4.—Dr. A. E. was a white man aged 68, with a four day history of frequent mucosanguineous stools, following two years of intermittent diarrhea and loss of weight of 15 pounds (6.8 Kg.). Physical examination revealed essentially normal conditions except for the rectal examination, which disclosed the presence of a hard mass on the left lateral wall about 3½ inches (9 cm.) from the anal margin and extending toward the posterior wall. The proctoscopic appearance was that of an ulcerating neoplasm. Smears from these ulcers, however, showed numerous motile trophozoites of E. histolytica. In order to rule out concomitant carcinoma a biopsy was made from the margin of the tumor, the section being reported as "tumefied nodule . . . with . . . E. histolytica as the causative factor. No evidence of malignancy." Culture of the bowel contents was negative.

Vigorous antiamebic therapy resulted in the complete disappearance of the tumor mass with restitutio ad integrum.

Case 5.—Mrs. A. E. was a white woman aged 63, the wife of Dr. A. E. (case 4), with a one year history of intermittent attacks of abdominal distention and cramps in the right lower quadrant accompanied with low grade fever. Physical examination revealed essentially normal conditions except for resistance to deep palpation of the right lower quadrant. Barium enema showed the presence of a large filling defect of the cecum (fig. 3).

With a preoperative and postoperative surgical diagnosis of carcinoma of the cecum, resection of the cecum with side to side anastomosis of the colon was performed. The specimen disclosed a large necrotic ulcer of the cecum, approximately 1.5 by 1.75 cm., having an indurated base with several smaller satellite ulcers. Smears taken from the ulcer showed motile trophozoites of E. histolytica; sections disclosed a chronic inflammatory granulomatous appearance with no evidence of cancer.

After this circuitous arrival at a diagnosis, antiamebic therapy was instituted and the patient recovered.

Case 6.—J. T. was a white man aged 52 with a two week history of lower abdominal pain and mucosanguineous diarrhea accompanied with low grade fever. The previous history was irrelevant.

Physical examination revealed essentially normal conditions except for tenderness throughout the lower part of the abdomen. Proctoscopic examination revealed infiltration of the bowel wall and multiple necrotic ulcers at the rectosigmoid junction. Barium enema showed a filling defect at the rectosigmoid junction (fig. 4). The clinical diagnosis was carcinoma, but smears from the ulcers showed numerous motile trophozoites of E. histolytica.

With antiamebic therapy there was complete disappearance of the lesion and regression of symptoms.

COMMENT

Recently, we [7] described 3 fatal cases of amebic colitis characterized by an extensive ulceronecrotic process. Two of these cases were complicated by concomitant infection with a dysentery organism, which may explain in part the fulminating course. In case 3 of the present paper, the response of the bowel to the presence of amebas was the formation of a large granuloma without

Fig. 4 (case 5).—Barium enema showing filling defect of rectosigmoid.

other demonstrable pathologic condition. Although the patient died postoperatively, it is reasonable to infer that the fatal outcome was promoted by the presence of the B. shigae. In all these cases, however, the pri-

7. Silverman, D. N., and Leslie, A.: Intractable Amebic Colitis with Special Reference to the Ulceronecrotic Form, J. A. M. A. **129**: 187-190 (Sept. 15) 1945.

mary agent of death was probably the ameba. It is difficult to explain why on the one hand there is a necrotizing process and on the other a granulomatous response evoked by the same organism. For a facile explanation it might be conjectured that there is a competition between the destructive activity of the ameba and the regenerative power of the host. If the

Fig. 5 (case 3).—Photomicrograph of cecal tumor.

infestation is sudden and overwhelming there is no time for marshaling the defenses against the invasion, and the unopposed histolytic activity of the ameba results in the severest form of the disease. This set of circumstances was observed by Faust [8] to occur in outlanders who entered areas of amebic hyperendemicity. In such regions the natives apparently enjoy a degree of immunity, or at least resistance, to the extreme manifestations of the disease, because the incidence of infestation is high while the incidence of clinical symptoms is low. As a corollary to this observation, it may be stated that many of the reports of cases of amebic granulomas come from South America,[9] where amebic infestation is widespread. If this resistance exists or the initial infestation is not tremendous, the local regenerative process may be excessive in certain persons, ultimately resulting in the formation of a tumor. In view of the high incidence of amebic infestation this explanation is inadequate to account for the relative infrequency of amebic granulomas. Although there are various strains of E. histolytica, there are too many gaps in our present knowledge for us to do any more than mention the possibility of specific strains associated with the granulomatous response. Perhaps an undiscovered concomitant infection due to B. dysenteriae may contribute to the provocation of this response.

The outstanding and almost universal characteristic of amebic granulomas is their response to specific therapy. The rapid resolution of large tumors after the administration of emetine hydrochloride can only be compared with the melting away of syphilitic gummas after exhibition of the iodides. An amebic granuloma in which extensive fibrosis has taken place may require surgical intervention, but this should not be considered until thorough amebicidal therapy has proved inadequate. Large tumors are seen to disappear after medical therapy alone, as was shown in cases 2, 4 and 6 herein reported. The large granuloma associated with the infection with B. flexneri (case 1) did not respond to autogenous vaccine therapy, and since there was no more specific type of therapy available at the time the patient was observed, a surgical resection was successfully performed. It may be that antibiotic therapy, when more highly developed, will be effective in such cases. It should be noted that inflammatory tumors occurring in the course of bacterial dysentery must be exceedingly infrequent, since search of the recent literature failed to disclose other such cases. It is probable, however, that many of the inflammatory tumors heretofore described were bacterial in etiology, the organism being elusive and not successfully cultured.

The importance of correct diagnosis is basic and elementary, but particular importance is attached to making the correct diagnosis of a disease for which specific therapy is curative. The fatality reported herein might have been avoided had amebicides been administered. If the tumor had been resected in one stage, as was done in case 5, the pathologist would have provided the diagnosis and antiamebic therapy would have been instituted. It should in most cases, however, be unnecessary to enlist the surgeon's aid to establish a diagnosis of amebiasis. Rectal scrapings or even a biopsy if a tumor is within reach of the sigmoidoscope can be diagnostic. If amebic granulomas are considered in the differential diagnosis of tumors of the colon, careful examination of the saline-purged stool will in most instances of amebic tumors reveal the protozoon.

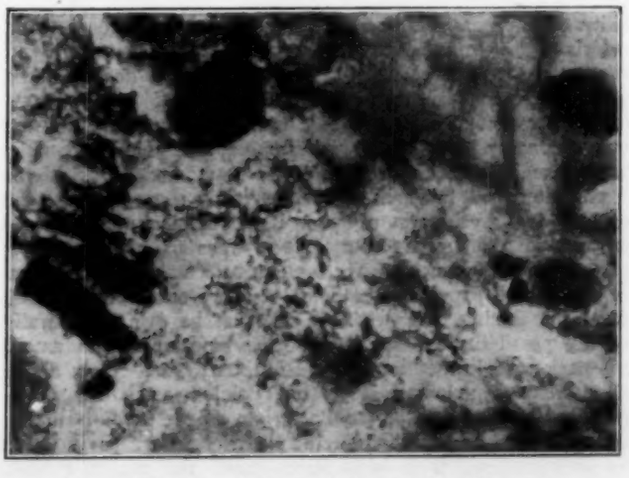

Fig. 6.—Photomicrograph of rectal tumor of amebic origin.

In isolated instances, such as case 3, the amebas are present only in the depths of the tumor mass and elude the parasitologist, to the detriment of the patient. Although it is contrary to scientific instincts to give specific treatment without a specific diagnosis, a case such as this gives one pause, and in the younger age

8. Faust, E. C.: Some Modern Concepts of Amebiasis, Tr. & Stud., Coll. Physicians, Philadelphia **11**: 101-113 (Dec.) 1943.

9. Karlen, M. A.: Inflammatory Tumor of Large Intestine (Amebic), Arch. urug. de med., cir. y especialid. **23**: 63-72 (July) 1943. Marin-Moreno, N., and Faimberg Wassermann, I: Amebic Rectal Tumor Complicating Chronic Dysentery: Case Simulating Cancer, Arch. argent. de enferm. d. ap. digest. y de la nutricion **17**: 449-456 (April-May) 1942. Haran, A. M.: Intestinal Occlusion due to Amebic Tumor of Colon, Arch. urug. de med., cir. y especialid. **16**: 177-187 (Feb.) 1940.

group at least, when the history is at all suggestive, such action might well be justified.

The problem of amebic granulomas is no longer regional, limited to the South and the tropics as heretofore believed. Cases of amebic tumors are reported from northern areas. Likely and Lisa [10] reported 1 case of granuloma of the large intestine associated with amebiasis in the state of New York, and in 1935 [11] an amebic tumor was presented as a Cabot case in Boston.

SUMMARY

1. Six cases of inflammatory intestinal tumors are reported. Four of these were amebic granulomas, 1 a granuloma occurring in combined amebic and bacillary disease and 1 a granuloma in uncomplicated chronic infection of the bowel with Bacterium dysenteriae.

2. The diagnostic and therapeutic implications are discussed with emphasis on distinguishing these tumors from malignant neoplasms.

ABSTRACT OF DISCUSSION

Dr. Russell S. Boles, Philadelphia: I congratulate Drs. Silverman and Leslie on their alertness in recognizing these cases. Most of us are not as aware of the possibility of these lesions as we should be and as I hope we will be hereafter. One of the most important lessons that this paper teaches is the necessity of securing a very complete history of all cases. One of the most unfortunate consequences of the accelerated course for medical students and for interns that I have seen in teaching students is their indifferent attitude toward a good history, and their too ready acceptance of a roentgenologic or laboratory diagnosis. I think it is most unfortunate, and it is going to continue to cause mistakes of the kind that Dr. Silverman has pointed out here. It would be a bit small, I guess, at this time to question the use of the word tumor in these cases. "Tumor" in my conception is a mass of unknown etiology. Now, these masses that are due to the ameba are, of course, granulomatous lesions of more specific type and not, strictly speaking, tumorous. I should like to refer briefly to 2 cases that I should perhaps question a little bit. The first case: The boy 19 years of age, with a one year history of constipation. Why attribute the lesion that was demonstrated in the cecum necessarily to the Bacterium flexneri organism that was found, in view of the steady, progressive, downward course and the necessity of ultimate resection? How could the possibility of a primary hypertrophic granulomatous type of tuberculosis of the cecum be entirely eliminated? The roentgenogram suggested that this could be a primary lesion. The ulcerative types are secondary to pulmonary lesions. I believe, in 99 to 100 per cent of cases. Case 2 is remarkably interesting and unquestionably bona fide, showing a ready response to emetine therapy and ultimate regression of the tumor and the symptoms. I was interested, however, in the extremely short history given of only two weeks, yet a tumor mass had developed without any previous suggestive symptoms of intestinal pathology. In case 3 could the amebas have been coincidental? I didn't hear or see in the paper any pathologic report of the tumor aside from the finding of amebas. One must be aware, naturally, of the possibility of carcinoma being associated with amebic infestation, and whether case 3 is primarily and solely a case of amebic granulomas is in my opinion something to be considered. The role of the Bacterium shigae here—is that to be considered necessarily specific or not? Perhaps it should be so considered if it is to be assumed that the B. flexneri organism in case 1 was specific. Could that have been carcinoma in a young man, 25 years of age? It is not rare. Case 4, again, was most interesting, a bona fide amebic, specific granuloma with a regression of symptoms. This paper emphasizes the necessity for all of us to consider amebic granulomas in questionable bowel lesions. I want to ask Dr. Silverman one question: How did you treat the cases with emetine, and how long did it take for you to notice a regression of the tumor mass in the cases in which that happened?

Dr. Hyman I. Goldstein, Camden, N. J.: "Tumor" is a swelling or morbid enlargement; it is a mass of tissue (new) which persists and which has no physiologic use—not necessarily always a benign or malignant neoplasm! Our friend, Dr. Boles, is in error when he criticizes Dr. Silverman for speaking of a granulomatous tumor or mass! Dr. Silverman was correct. A "tumor" is any swelling or tumefaction and the word also refers to any neoplasm.

Dr. Daniel N. Silverman, New Orleans: For years we have emphasized that diarrhea is absent or only occasional in almost 80 per cent of cases of chronic infection due to Bacterium dysenteriae and amebic infestation. The pathologic process may be localized to the right colon in these conditions and produce no objective irritative manifestations. The lesions were studied microscopically. Tuberculosis may have played a part, but the organism was not found, and the pathologic changes of tuberculosis were not in evidence. We could not say that tuberculosis existed. Now concerning treatment: The amebic granuloma responds as readily to emetine hydrochloride as does the hepatic abscess, with practically complete disappearance a week to ten days after the administration of emetine is started. I might reiterate that in the cases, our own and those of others, in which there was surgical intervention, this was because the correct diagnosis was not made. In response to the question by Dr. Boles on how long it took for regression of the tumor mass, the answer is about ten or twelve days.

10. Likely, D. S., and Lisa, J. H.: Granuloma of Large Intestine Associated with Amebiasis, New York State J. Med. **42**: 2322-2323 (Dec. 15) 1042.

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CHRONIC ULCERATIVE COLITIS

Proctologic Interpretation and Treatment

MARTIN SELER KLECKNER, M.D.
Allentown, Pa.

Since proctologic practice includes the study, diagnosis and treatment of all pathologic conditions of the large bowel, it is not unusual to find segmented areas of large portions of the colon involved in advanced stages of inflammatory disease. This is primarily revealed by careful history, thorough physical examination, and sigmoidoscopic findings, aided by the double contrast air enema and the laboratory examinations of smears and cultures taken from these infected parts. Such familiar pictures, in contradistinction to the acute forms of the disease, are variously spoken of as nonspecific, chronic ulcerative, thromboulcerative or idiopathic colitis. My own belief is that a combined designation (chronic nonspecific ulcerative colitis) is the most practical term, particularly when reporting this diagnostic condition to the general practitioner.

A detailed description of the pathologic and clinical picture involving the colonic mucosa in this disease would be time consuming, but a review of the splendid efforts of some of the gastroenterologists (Bargen, Bockus, Crohn, Felsen and Paulson in particular) would prove most helpful and instructive. Briefly, the primary etiologic factor in chronic nonspecific ulcerative colitis cannot be determined, but it is known that the resultant secondary invasions into the bowel wall are due to certain causes—bacterial, toxic or both. It has been the impression that these lesions of the bowel are frequently influenced by certain factors or phenomena which may alter the progress of this disease. These conditions may be due to allergic, immunologic, nervous or nutritional faults or deficiencies.

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Seldom do these patients seek the advice of the gastroenterologist or proctologist until both clinical and pathologic conditions have reached the chronic stage, which will usually be several months to a year after the onset of the existing trouble. The symptomatologic history elicited in these cases revealed diarrhea, blood with mucus in the stool and tenesmus as most commonly present. Dull pain or discomfort in the lower part of the abdomen, constipation (in old chronic cases), flatus, weakness and loss of weight followed in that order. Acute exacerbations of this chronic condition are not uncommonly seen, with the symptomatology greatly aggravated. Ofttimes rest in bed and hospitalization are required to combat this sudden change in the disease process of the patient.

Physical examination should always include study of the oral, nasal and aural cavities as probable sites of some hidden focus of infection. The thoracic and abdominal regions may reveal other important clues which are substantiated by roentgenologic study. I have frequently found that even patients seen in the earlier

TABLE 1.—*Data on Two Hundred and Twenty-Three Cases of Chronic Colitis (Private Practice Only, 1940-1945)*

	Chronic Ulcerative Colitis (Near) with Considerable Response to Antiamebic and Antidysenteric Treatment but with Readily Controlled Flare-Ups (No Work Loss) 129 Cases (58%)				Chronic Nonspecific Ulcerative Colitis (Absolute) 94 Cases (42%)			
	Male		Female		Male		Female	
Ages	No.	%	No.	%	No.	%	No.	%
0-10	..	..	1	2	..	..	..	..
11-20	3	4	1	2	3	6	5	10+
21-30	9	12	5	9	11	27	10	21
31-40	18	24	13	24	15	32	15	32
41-50	22	20	12	22	9	21	7	15
51-60	13	17	15	28	6	13	5	10+
61-70	10	13	6	11	3	6	5	10+
71-80	1	1						
Total	76		53		47		47	
	Cancer found in 12 (9.1%)		Ratio 2:1		Cancer found in 4 (4.2%) (*C* and *D* groups, table 2)			

stages of the disease present a slight soreness in the right iliac fossa, more so than in the left, while the abdomen itself is usually soft, even when extensive portions of the bowel are involved. It is by sigmoidoscopic examination, however, that the true diagnosis is made. Visual confirmation of these terminal bowel lesions may vary from a smooth, moderately congested mucosa with occasional pinpoint hemorrhages (brought on frequently by the passage of the sigmoidoscope through a somewhat constricted lumen) to the freely bleeding types on whom its passage may cause considerable pain and discomfort. Because of this, much difficulty may be experienced and undue chance may be taken if continued efforts are made to pass the sigmoidoscope above the rectosigmoidal junction. Repeated sigmoidoscopic and roentgenologic examinations are necessary because the diseased bowel ofttimes shows much variation in the pathologic conditions present. Aside from the occasional regional types, it has been my experience that at one time or other the rectum or rectosigmoid is, or was, usually involved in the ulcerative process of this disease; furthermore, approximately 50 per cent of my cases in private practice showed involvement which did not extend beyond the proximal limits of the rectosigmoidal area. In all these cases the diagnosis was verified by careful roentgenologic laboratory study. The cases which revealed greater involvement seemed to be rather the result of direct extension from the rectosigmoidal area, usually with the descending colon and then the transverse portion of the large bowel involved in the severer types,

TABLE 2.—*Age and Case Statistics on Chronic Nonspecific Ulcerative Colitis from Private Practice (1940-1945)*

A	Under 1 yr. history	20 cases or approximately 20%
B	1-2 yr. history	24 cases or approximately 26%
C	2-3 yr. history	26 cases or approximately 28%
D	3-5 yr. and over	24 cases or approximately 26%

This series of 94 cases does not include 32 cases seen in consultation but referred to general practitioners and treatment prescribed.

	44 (*A* + *B* Group)		26 (*C* Group)		24 (*D* Group)	
	No.	%	No.	%	No.	%
I. Responding to treatment and considered cured (total cured: 40/94, or approximately 38%	22	50	10	38	6	25
II. Much improved but discontinuing treatment and continuing with gainful occupation	16	36	6	23	8	33
I and II. Cured and improved	38	86	16	61	14	58

Total cured and improved, groups *A* through *D* inclusive: 68 of 94 (72%)

Total unimproved, groups *A* through *D* inclusive	26/94	28%
1 Malignant types (died) (fulminating, unoperated: 4)	4/94	4%
2 Cases advised operation	22/94	23%
3 Cases absolutely refusing operation	9/94	9%
(3 malignancies; remainder, 6 alive)	9/22	40%
4 Cases operated (ileostomy/colectomy)	13/22	59%
5 Mortality (4) (1 malignancy plus 3 chronic nonspecific ulcerative colitis)	4/13	30%
Total deaths (1, 3 and 4)	11/94	11%
Total deaths, surgery alone	8/94	8%

and often with more or less irreparable damage. These modifications and changes are greatly influenced by the virulence of the disease itself, the length of time the patient has suffered with colitis, together with the reactions which various patients displayed not only to the treatment afforded them but also to emotional disturbances. Dietary indiscretions and, to a lesser extent, some nutritional deficiencies and the avoidance of colds also influenced these modifications and changes. It is generally believed that patients with chronic nonspecific

TABLE 3.—*Medical (Nonsurgical) Phase of Treatment of Chronic Nonspecific Ulcerative Colitis (Private Cases)*

1. Rest (in bed if necessary)
2. Diet (nonirritating, low residue, high caloric)
3. Therapeutic test (in absence of laboratory findings):
   a. Daily subcutaneous injection of emetine hydrochloride ¾ grain (0.045 Gm.) for one week
   b. By mouth (the following have been found efficacious):
      (1) Carbarsone in capsules, 4 grains (0.24 Gm.) twice a day (10 days)
      (2) Diodoquin, 9 grains (0.58 Gm.) three times a day for 1 month
      (3) Emetine bismuth iodide (in capsule), 3 grains (0.2 Gm.) twice a day (10 to 14 days)
      (4) Chiniofon, 0.5 to 1.0 Gm. three times a day (7 to 10 days)
   c. Retention enemas: Carbarsone, 2.0 Gm. in isotonic solution of sodium chloride, 6 ounces (180 cc.) (nightly—7)
   d. Autogenous vaccines or Bargen streptococcus vaccine
   e. Antidysenteric serum

ulcerative colitis are seldom free from symptoms. In my series of private patients I have found a goodly number who seemed to be happy and minus any appreciable gastrointestinal disturbances for weeks at a time. They continued at their regular routine, several of them operating heavy cranes even though sigmoidoscopy revealed "lesions in abeyance." This I found was possible chiefly because they followed a strict regimen of living (with the usual high caloric low residue diet),

and practiced the occasional self administration of certain medicaments, lately and most effectively, phthalylsulfathiazole (Sulfathalidine). I should like to mention that in the comparison between patients from private and free clinic practice, one is permitted a higher score for betterment and for cure in the former group; and, because of this and their ability "to get along pretty well," permission is less freely granted by private patients for the performance of operative procedures other than those of minor degree.

The study of the statistics given in table 1 reveals that a total number of 223 private cases of chronic colitis are reported in the period from 1940 to 1945, of which 129 (58 per cent) were ruled out as not being strictly chronic nonspecific ulcerative colitis. These

TABLE 4.—*Chronic Nonspecific Ulcerative Colitis: Other Drug Therapy*

a.	Occasional purge, prescribing castor oil, 15 to 30 cc. in orange juice and sodium bicarbonate
b.	Fuller's earth products alone or combined with bismuth plus camphorated tincture of opium
c.	Atropine alone or combined with codeine
d.	Calcium compounds (calcinum gluconate 20 to 40 grains, or 1.4 to 2.6 Gm., daily)
e.	In cases in which constipation is a factor, iron with liver extracts and vitamins (see below)
f.	Vitamin replacement (B complex, ascorbic acid and vitamin K, especially); (Synkayvite * 5 mg. by mouth four times a day as "K," when there is much bleeding; or Hykinone, 4.8 mg. [1 cc. hypodermically] as required)
g.	The administration of amino acids by mouth or intravenously. (Parenamine, acid hydrolysate of casein fortified with di-tryptophane, 15 per cent sterile solution in 100 cc.) to provide calories and protein need, 4 calories per gram. Best given with 5 per cent dextrose in isotonic solution of sodium chloride. (I have been using a new, unofficial product called "Delcos Granules," which contains amino acids, 3.2 calories per gram, by mouth)
h.	Local application of 5 per cent silver nitrate solution to ulcerations through the sigmoidoscope
i.	Instillations per rectum of a 5 to 10 per cent solution of bismuth subgallate in olive oil (1 to 4 ounces, 30 to 120 cc.) one or two times a day for retention, after cleansing enema
j.	Insufflations via sigmoidoscope of sulfathiazole and bismuth subgallate powder every three to four days
k.	Phthalyl sulfathiazole (sulfathalidine) 2.0 to 4.0 Gm. daily by mouth (it is nontoxic and requires no bicarbonate of soda: with 50 per cent recovery in stool, action is confined locally to ulcerations)

* Synkayvite is tetrasodium 2-methyl-1, 4-naphthohydroquinone diphosphoric ester; Hykinone is menadione sodium bisulfite.

TABLE 5.—*Chronic Nonspecific Ulcerative Colitis: Surgical Phase*

Preliminary (permanent single barrel) ileostomy, to be followed in two to three months by two stage colectomy (complete). Coupled with the preoperative care, there must be included the free use of whole blood, plasma and dextrose, intravenously

patients showed considerable response to antiamebic, antidysenteric and similar types of treatment. Although many of them showed "return flare-ups" at intervals of three or four months, they never seemed to get out of "treatment control"; the patients felt well and frequently attributed these so-called relapses to their own mode of living. These 129 cases were classified by me as "near chronic nonspecific ulcerative types." Of the remainder 94, or 42 per cent, were truly cases of chronic nonspecific ulcerative colitis with an equal distribution in sex and with the disease appearing most commonly between the ages of 20 and 40. In a comparison of these with the "near" cases, in which the age limit extended from 30 to 60, I found that in this "near" group cancer was more frequently detected (9 per cent to 4 per cent).

The earlier the cases in the absolute group were diagnosed and the shorter the duration of the disease, the better were the chances in general for apparent cure and improvement, as is observed by reference to table 2, in which 72 per cent (68 of 94) showed satisfactory results to medical or (minor) surgical treatment other than ileostomy, colectomy or both. Each of the 223 patients was given the same routine proctologic examination, and the usual roentgenologic and pathologic procedures were followed. Unless early stool examinations were done by a competent technician, the results were discounted and the studies were repeated. Cultures, smears and swabs from the involved membranes were carefully investigated and studied. Routine studies of the blood and urine included tests for syphilis, and in returned war veterans the presence of malaria was always suspected. More advanced cases demanded tests for sedimentation, blood urea, serum protein and plasma chlorides. Craig's complement fixation tests, as recommended by Kiefer, proved helpful in some of these cases in which we attempted to exclude the diagnosis of amebic disease. At times studies of hepatic function proved decidedly valuable.

Repeated study after a barium enema yielded comparative information on the extent and progress of the colonic disease. I have been particularly partial to gaining information via the double contrast barium air enemas, although use of this procedure has not met with ready response on the part of the roentgenologists, mainly because of the time required for its satisfactory accomplishment. Certainly these patients, stricken with such seriously inflamed lesions of the bowel, cannot be hurried and will frequently consume much valuable time in a busy roentgen laboratory, but unless care and patience are used I have found that the results are unsatisfactory. The frequent study of all specimens, best obtained directly from the surface of the diseased bowel itself through a sterilized sigmoidoscope, has proved the best way to determine bacterial flora. Material obtained in this manner should be examined at once and also planted on the appropriate culture medium as directed by the pathologist. Biopsy specimens, scrapings and smears were usually the materials forwarded for laboratory investigation. Frequent examinations of the feces of these patients were performed. The principal infective agents looked for were the Entameba histolytica with its cysts, the organisms causing dysentery, acid-fast bacilli (Mycobacterium tuberculosis) and the commoner parasites. The work entailed in the study of such materials by the personnel of the pathologic laboratory is well known, and their full cooperation and correct diagnosis may often spell cure to many of these patients.

The best results were always obtained when the combined efforts of the gastroenterologist, pathologist, radiologist and proctologist (or such surgeon well versed in colon operative technic) were utilized. As a proctologist, most of my work comprises surgery of the large bowel, but the medical phase in all these cases is a primary and extremely important factor. The nonsurgical measures which I employed may be noted by referring to tables 3 and 4. Unless full cooperation was procured and fairly good response to treatment was noted (in these 94 private cases) operative measures advising preliminary ileostomy were urged with colectomy to be performed later (table 5). As private patients are invariably assured of their own financial support, operative intervention was usually refused—particularly when the patient was informed that an ileostomy bag would have to be worn. There was difficulty in convincing patients in years past that a permanent colostomy for cancer of the colon, if well managed, did not require the wearing of a bag; this

has proved a convincing argument to such patients. Today, difficulty is being experienced because the wearing of an appliance has been the real objection to accepting surgical intervention, even though cure from the malady is assured. The fairly long period of hospitalization with its usual three stage operative procedure before cure can be obtained has not been the reason for absolute refusal, as many may have believed. I am convinced of greater success with the continuance of efforts toward the eradication of the diseased colon (in toto) and the performance of surgical operation at those opportune times when the ulcerative processes have become fairly quiescent. After medical treatment has been given every opportunity for betterment, and radiologic interpretation of diseased colon involvement is complete (which may even be present in patients followed for one year), then preliminary ileostomy must be performed, with colectomy (in two stages) usually following within the next two or three months. This measure provides cure. With time and full cooperation on the part of the patient as to diet and local care (but with the necessity of wearing a bag), health and future happiness will come to those patients whom medical treatment alone has failed to cure.

202 North Eighth Street.

ABSTRACT OF DISCUSSION

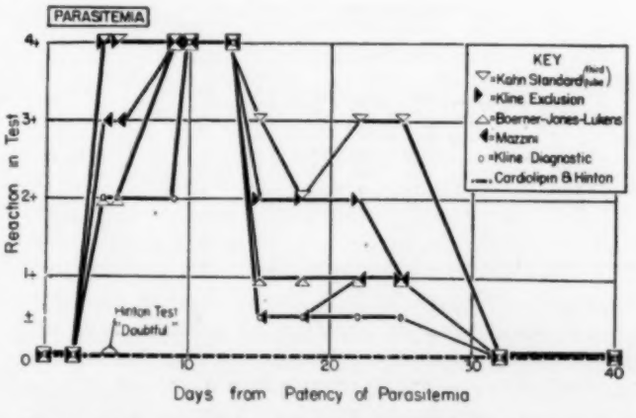
DR. A. W. MARTIN MARINO, Brooklyn: Chronic ulcerative colitis may give rise to serious consequences. It is primarily a medical and not a surgical problem unless serious sequelae and complications arise. The ideal treatment has not been found. Fortunately, most patients respond reasonably satisfactorily to good medical management and carry on their duties with only occasional relapses. In a special group of patients there is an aspect of this disease at which I never cease to marvel, and it is this: periodic proctoscopic examinations of this special group of patients over a period of years will show any or all stages of chronic ulcerative colitis, and yet these patients have no symptoms and state that they feel perfectly well! It is true that these patients may suffer mild relapses from time to time, but these are of short duration and frequently follow an infection of the upper part of the respiratory tract. Some patients fail to respond to carefully planned conservative measures including diet, vitamins, sulfonamide compounds, and blood transfusions. Their fever, general malaise and bowel symptoms persist, and complications such as inability to eat, increasing abdominal distention, severe hemorrhage and perforation, ensue. Ordinarily that is the type of patient on whom I would consider performing an ileostomy with eventual colectomy. I might say that when I perform an ileostomy I transect the ileum so that the ileal stream is completely diverted. My experience with colostomy performed proximal to the disease in the colon is so discouraging that I shall dismiss that subject at this time. I have had under my care this year 4 patients desperately ill with chronic ulcerative colitis. In 1 there developed definite signs of perforation and peritonitis. All 4 patients were given 30,000 units of penicillin every three hours day and night for periods of from seven to twenty-two days in preparation for their operation. However, ileostomy was not necessary in any of these patients because in a matter of days improvement took place, and all left the hospital in a condition ranging from improved to fully recovered. I recognize that the beneficial results I have observed do not necessarily mean permanent relief, but I am sufficiently encouraged by this treatment to feel that it warrants further trial. From what I have seen, I cautiously state that the administration of penicillin in high doses may be as lifesaving a procedure as ileostomy, without the disadvantages of the latter. The more ileostomies I have performed the more I have wished that there was some other method of taking care of these patients. A colostomy performed in the course of a combined abdominoperineal resection for carcinoma of the rectum is an entirely different affair than an ileostomy. I can educate patients with colostomies so that they accept their condition as a matter of course, but it seems to me that my patients with ileostomy forlornly sit on my doorstep waiting to have the continuity of their intestine resumed. These patients with ileostomy forget that the operation was performed as a lifesaving measure, and in as much as the survivors feel perfectly well, they resent the inconvenience of the more or less constant ileal drainage, regardless of what kind of a bag they may be wearing. For that reason I have sought, for some time, to find other means of taking care of these persons. In cases in which the rectum and colon are irremediably crippled there is no alternative but ileostomy. However, antibiotics may take the place of ileostomy in some patients desperately ill with chronic ulcerative colitis.

FALSE POSITIVE TESTS FOR SYPHILIS

A Study of Their Incidence in Sporozoite-Induced Vivax Malaria

CHARLES R. REIN, M.D.
New York
and
CAPTAIN JOHN F. KENT
Sanitary Corps, Army of the United States

The disease malaria has been well established as one of the conditions which may produce a positive serologic reaction for syphilis in nonsyphilitic persons. Various investigations, however, have yielded data that varies widely as to the incidence of such false positive reactions. Excellent reviews of these studies have been published by Davis [1] and Beerman.[2]



Course of the serum reaction in seven tests for syphilis during an attack (third relapse) of sporozoite-induced vivax (St. Elizabeth strain) malaria.

An opportunity to reinvestigate the problem was afforded us two years ago when the United States Public Health Service initiated experiments concerned with the chemotherapy of sporozoite-induced human malaria. Our primary interest in obtaining specimens of serum from the subjects of these experiments lay in the development of a quantitatively standardized complement fixation test for malaria.[3] However, a concurrent study of the incidence of false positive reactions

From the Division of Serology, Army Medical School, Army Medical Center, Washington 12, D. C.

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Dr. Mary C. Pangborn of the Division of Laboratories and Research of the New York State Department of Health generously supplied the cardiolipin and purified lecithin used in this study, and Captain Hilfred N. Bossak, Sanitary Corps, Army of the United States, Miss Sara McDearman and Mr. Robert Sanders gave technical assistance.

1. Davis, B. D.: Biologic False Positive Serologic Tests for Syphilis, Medicine **23**: 359-414, 1944.

2. Beerman, H.: Biologic False Positive Reactions to the Tests for Syphilis, Am. J. M. Sc. **209**: 525-542, 1945.

3. Bukantz, S. C.; Kent, J. F., and Rein, C. R.: Studies in Complement Fixation: III. Malaria; the Application of Quantitative Principles in the Optimal Adjustment of Reagents and Test Conditions, to be published.

in serologic tests for syphilis was also undertaken in view of the nature and scope of the experiments, which permitted the pretesting of a large group of selected persons before exposure to malarial infection and the examination of serial specimens of serum over extended periods of observation. We are indebted to Dr. G. Robert Coatney and his associates at the National Institute of Health, Bethesda, Md., for making several thousand serum samples available for our combined studies.

MATERIALS AND METHODS

Subjects for the experiments had been selected from male volunteers at the United States Penitentiary, Atlanta, Ga. Only those were enlisted who presented no clinical or anamnestic evidence of syphilis. Specimens of serum were obtained from each person before his inoculation with malaria by mosquito bite, at daily intervals during attacks, two or three times weekly after attacks and at weekly intervals through other periods, the total time of study lasting as long as eighteen months. The serums were preserved in tubes containing dried merthiolate sufficient to give a final concentration of 1.0 mg. per 1 cc. of serum. They were shipped by ordinary mail to the Army Medical School where they were subjected to a battery of serologic tests for syphilis which included the Kahn standard test, the Hinton flocculation test, and the Kline diagnostic, Kline exclusion, Mazzini, and Boerner-Jones-Lukens microflocculation tests. A newly developed microflocculation test [4] employing a cardiolipin antigen was included to determine its specificity in relation to the other procedures. A total of 7,493 serums obtained from 90 persons were examined in this manner; 44,958 serologic tests for syphilis were performed.

Percentage of Persons Developing Positive Reactions in Serologic Tests for Syphilis During the Course of Sporozoite-Induced Vivax Malaria

	Serologic Test for Syphilis																							
	Kahn Standard (Third Tube)			Kline Exclusion			Boerner-Jones-Lukens Flocculation			Mazzini Flocculation			Kline Diagnostic			Hinton Flocculation			Cardiolipin Flocculation					
	Persons Tested																							
		Positive			Positive			Positive			Positive			Positive			Positive			Positive				
Type of Attack	No.	No.	%	No.	No.	%	No.	No.	%	No.	No.	%	No.	No.	%	No.	No.	%	No.	No.	%			
Primary																								
Early	15	12	80	20	14	70	20	11	55	20	13	65	20	14	70	19	2	11	1	0	..			
Delayed	44	26	59	45	26	58	21	12	57	45	21	47	45	18	40	45	5	11	25	2	8			
Relapse																								
First	59	22	37	59	21	36	46	12	26	59	24	41	59	14	24	59	2	3	14	1	7			
Second	41	6	15	41	11	27	34	9	27	41	7	17	41	4	10	41	0	..	7	0	..			
Third	14	5	36	14	4	29	8	2	25	14	3	21	14	2	14	14	2	14	6	0	..			
Fourth	6	3	50	6	1	17	3	1	33	6	1	17	6	1	17	6	0	..	4	0	..			
Fifth	2	0	..	2	0	..	..	..	..	2	0	..	2	0	..	2	0	..	2	0	..			
Sixth	1	0	..	1	0	..	..	..	..	1	0	..	1	0	..	1	0	..	1	0	..			

RESULTS

The present communication records the results obtained with successive serums from 90 persons. Of these, 80 had been infected with sporozoites of the well documented St. Elizabeth strain and 10 with sporozoites of the Chesson strain of Plasmodium vivax. Two types of primary attack were encountered. Early primary attacks occurred after the usual incubation period in untreated controls and in patients who had received experimental chemotherapy inadequate for suppression. Delayed primary attacks were experienced by subjects who had had a chemotherapeutic regimen adequate for suppression of an early primary attack. After primary attacks the subjects experienced from zero to six relapses.

A false positive reactor was defined as any person who developed a persistent reaction of degree plus-minus or greater after infection with malaria. Fifty-seven (63.3 per cent) of the 90 infected subjects developed such false positive reactions with one or more of the serologic tests at some time during the course of the disease. Forty-nine (61.3 per cent) of the 80 patients infected with the St. Elizabeth strain and 8 (80 per cent) of 10 patients infected with the Chesson strain fell in this group. In view of the small number of subjects infected with the latter strain, the observed difference in the frequency of false positive reactors is not considered to be significant. The relatively high incidence of false positive reactors observed in this study is considered to be due, in large part, to the frequency with which specimens were collected and to the number of tests employed in the serologic battery.

Seropositivity was not encountered in advance of the fever or parasitemia of an attack. False positive reactions appeared, on the average, 8.3 days following patency of the parasitemia, the interval varying in different persons within the limits, zero to thirty days. The observed average interval did not differ significantly in primary attacks and in relapses and appeared to be uninfluenced by the serologic test used. The accompanying illustration shows the course of the false positive reaction after an attack of malaria due to the St. Elizabeth strain of P. vivax. Reactions in this instance appeared four days after a parasitemia became patent. The Kahn standard and Kline exclusion tests showed the strongest nonspecific reactions, whereas the Hinton test yielded doubtful reactions over a two day period only. The mircroflocculation test employing a cardiolipin antigen was negative throughout.

In the great majority of subjects the nonspecific reaction was characteristically transitory and of low degree. False positive reactions which resulted from individual attacks of malaria persisted for intervals varying from a minimum of two to three days to a maximum of ninety-eight days. Reactions which persisted for longer periods were observed in certain instances when successive relapses supervened before the seropositivity due to a preceding attack had subsided. A maximum duration of five hundred and seventeen days was encountered in 1 such instance. It is noteworthy that, in general, the duration of such reac-

4. Rein, C. R., and Bossak, H. N.: Cardiolipin Antigens in the Serodiagnosis of Syphilis, Am. J. Syph., Gonor. & Ven. Dis. **30**: 40-46, 1946.

tions was influenced by two factors, (1) the specificity of the test employed and (2) the titer developed by the patient in question.

The determination of the specificity of the different serologic procedures was based on the percentage of patients developing persistent false positive reactions as previously defined herein. Separate analyses were made for each type of primary attack and for relapsing attacks in the order of their occurrence. The data are summarized in the accompanying table.

It will be noted that the incidence of false positive reactors appears highest in early primary malaria, somewhat lower in delayed primary attacks and lowest in relapses. Of the battery of tests employed in this study, the highest percentage of false positive reactors was observed with the Kahn standard test and the lowest with the Hinton flocculation test. The cardiolipin microflocculation test yielded results of exceptional specificity. It should be pointed out that the false positive reactors listed under the latter test in the accompanying table never gave reactions greater than plus-minus, whereas those listed for the Hinton test gave reactions ranging from doubtful to positive. The exceptional specificity of the Hinton flocculation and cardiolipin microflocculation tests is striking in view of their recognized high sensitivity in the serodiagnosis of syphilis.

SUMMARY AND CONCLUSIONS

In a controlled study of sporozoite-induced vivax malaria, a series of 7,493 serums obtained at suitable intervals from 90 nonsyphilitic volunteers were subjected to a battery of 7 serodiagnostic tests for syphilis; 44,958 tests were performed.

Fifty-seven (63.3 per cent) of the 90 infected subjects developed false positive reactions with one or more tests during the course of the disease.

The Hinton flocculation test and a microflocculation test employing a cardiolipin antigen yielded results of high specificity.

ABSTRACT OF DISCUSSION

DR. CHARLES R. REIN, New York: Dr. Giordano asked whether a complement fixation test was performed on these specimens. I should like to report that Captain Kent subjected most of these serums to several complement fixation procedures including the Kolmer test. The incidence of false positive reactions for syphilis was about the same as that obtained with some of our flocculation tests.

At the Army Separation Centers some soldiers were found to have positive serologic reactions for syphilis without any clinical or anamnestic evidence of the disease. Many of these nonspecific or nonsyphilitic reactions were due to a malarial infection. We were able to subject the serums from some of these persons to a battery of serodiagnostic tests, including our new microflocculation procedure which employs a cardiolipin antigen. The characteristic serologic pattern obtained with such serums was a negative reaction with the cardiolipin test and doubtful or positive reactions with the other routine flocculation or complement fixation tests. In fact, whenever such a serologic pattern was obtained in our routine consultation cases, malaria was suspected and often proved to be the cause of the false positive reactions.

DR. BENJAMIN KLINE, Cleveland: Dr. Rein gave me some knowledge of his work with cardiolipin antigen, and the results in a series of 270 serums obtained from Crile Hospital bear out his findings. I had that number of serums in a series of some 9,500 covering general hospital and ambulatory cases, and a series of 650 serums in cases of unquestionable syphilis under treatment with penicillin. I have found in a comparison of present day standard antigens at their optimal concentration in one simple test, the flocculation slide test, that cardiolipin antigen can be set at a ratio that will give results as sensitive as those with Eagle and Mazzini antigens, for instance, and give more sensitive results than the Hinton, the Kahn and the Kline antigens. It is much more specific than any of the present day antigens. For instance, in the most important group, the malaria group, I found that whereas the tests with standard antigens averaged about 17 per cent false positive reactions, those with cardiolipin antigen varied from 1 to less than 2 per cent nonspecific reactions. In the state of Ohio physicians are reporting the results of tests with cardiolipin antigen and making it possible for young men returned from service, with no evidence of syphilis, to get married on the basis of the results with this remarkable, new antigen for syphilis.

DR. ALFRED S. GIORDANO, South Bend, Ind.: I wish to concur in the opinion expressed today on the specificity of the cardiolipin antigen in avoiding many of the false positive reactions. In my experience, while making this comparative study I was rather shocked to discover that, in addition to malaria and the other well known conditions in which false positive reactions have been found, there exists a high incidence of false positive Mazzini reactions in pregnancy and sepsis, particularly those associated with renal disease. This incidence is uncomfortably high, and the probable reason it hasn't come out is that in the national conferences such specimens were not included in the studies. In hospital practice, at least, these false positive reactions are frequently misinterpreted, and it is well to bear this fact in mind. With the return of the men from service, I have been aware of the false positive reactions of malaria, and whenever such reactions have been noted I have consulted with the physician, calling to his attention that in all probability the reaction was false and the patient should not be treated for syphilis.

PILONIDAL DISEASE—PRESENT STATUS OF MANAGEMENT

CURTICE ROSSER, M.D.
and
JACK G. KERR, M.D.
Dallas, Texas

General agreement has been reached concerning the mechanics involved in the embryonal development of the various postanal cysts and sinuses usually grouped under the general term "pilonidal disease." The theory that these are due to epithelial sequestration has taken complete precedence over all previous suggestions linking the condition with preen glands or medullary outgrowths. There is no such unanimity, however, in regard to the proper surgical treatment, and the purpose of this paper is to summarize and review present opinion on this moot subject.

It has often been said that wars offer an opportunity for mass experimentation in the management of disease, and this has been especially true during World War II in relation to pilonidal disease. Thousands of patients have been operated on by various technics with emphasis on closed surgical procedures. In the last few years a number of articles on the subject, almost entirely from military sources, have appeared in medical literature.

In general, a comparison of the articles published during recent years with earlier writings on this subject impresses one with the apparent acceptance of two major premises. One, that trauma, while unrelated to etiology, is a factor in the development of clinical symptoms; and second, that surgical intervention is the treatment of choice. In no report on the experiences

From the Department of Proctology, Southwestern Medical College of the Southwestern Medical Foundation.

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gained during military service have we seen advocated, as a method of eradication of the disease process, any of the several ambulatory methods described earlier. Also, the thesis is developed that military requisites demand a method of treatment that rehabilitates and returns a soldier to military duty as quickly as possible, since there is little space available for prolonged hospitalization and no provision for extended convalescence. Hence the procedures acceptable in civilian practice, such as block excision and allowing the resultant wound to heal by granulation during an extended ambulatory period, had to be supplanted if at all possible. With this objective certainly any one would agree. However, this criterion, as it relates to the time required for postoperative healing, has never demanded the attention that it did in military circles, since most civilian patients are allowed to resume their usual activities ten to fourteen days after block excision and open packing, whereas a soldier with an unhealed wound must be a hospital patient. This point is brought out in almost every report of war time experience, with the resultant emphasis being given to a method of handling the wound, both preoperatively and postoperatively, that lessens the duration of morbidity, allowing the percentage of "cures" to fall where it may.

Of course few, if any, of the recently advocated methods of dealing with the condition are new in their entirety. Many reviews prior to the war era have discussed various methods of complete excision followed by primary closure of the wound with and without drainage, excision with partial closure of the wound, excision followed by open packing of the wound, partial excision of the cyst wall with marsupialization as described by Buie [1] and various plastic procedures utilizing additional cutaneous incisions as described by Lahey.[2] Based on rates of recurrence only, opinion prior to the war was definite that some type of open operation was far superior to any type of closed procedure. Kleckner [3] substantiated this in 1936 when, after a poll of many proctologists, he found that open operation performed on 4,231 patients yielded a recurrence rate of 1.3 per cent, while this rate was 23.29 per cent after operations with primary closure of the wound.

Rogers,[4] reporting in 1933 on 119 cases of pilonidal sinus from the Massachusetts General Hospital during the years 1924 to 1931, found the incidence of recurrence to be: 36 per cent when primary suture of the wound was performed; 50 per cent in partially closed wounds, and 18 per cent if the wound was left open following excision. Subsequently, Rogers and Dwight [5] reported only 2 failures in 140 cases in which open packing of the wound was employed. Further, they advanced the conclusion that the cause of failure was usually not incomplete removal of the sinus epithelium but, rather, the newly formed epithelium in the process of faulty healing.

Swenson, Harkins and Groesbeck,[6] following Rogers' technic of open packing, reported 2 failures in 32 cases, with an average healing time of 14.4 weeks. They also emphasized the importance of close observation during the entire postoperative period and in particular during the final weeks.

The foregoing reports, while by no means exhaustive, do represent a fair estimate of the preponderance of opinion in favor of the so-called open operation, as it was expressed prior to the more recent military experiences. From these it will be noted that little emphasis was placed on the necessity for a reduction of the time required for the postoperative healing of the wounds, but stress was given to the ultimate complete recovery of the patient after some period of follow-up. In contrast, practically all the reports by medical officers on their experience while in service favor and advocate some attempt at closure; these recommendations appear to be approximately equally divided between methods of partial closure and complete primary suturing of the wound.

Brockbank and Floyd,[7] advocating marsupialization, expressed the belief, after their observation of 168 consecutive cases of pilonidal disease, that 90 per cent of patients can be returned to duty, completely healed, in twenty-one to twenty-eight days.

Coffey [8] has reported handling 50 cases by the same method without recurrences. He employed this method in 6 cases while in service on a battleship, with an average of twenty-one days lost from duty.

Mutschmann and Mitchell [9] stated that in their experience primary closure did not prove satisfactory and open packing required too long a period of healing. They advocated allowing acute infection, if present, to subside after adequate drainage; then, after block excision, the skin edges should be sutured to the sacrococcygeal fascia, leaving the skin edges apart without tension.

A somewhat radical departure from the common custom of performing surgical intervention aiming at cure only after the complete subsidence of the acute inflammatory process, is that advocated by Peterson and Ames.[10] They employed a method of marsupialization with no period of preoperative preparation, operating on patients with acute cases of the disease even in the presence of heavy infection. The edges of the skin are sutured to the edges of the cyst wall with steel wire, which is removed in seventy-two hours. They have reported the treatment of 75 to 100 patients with an average time on the hospital ship of between three and four weeks.

Striking among the reports are some that advocate complete excision of the disease process followed by complete primary closure of the wound. Formerly, this type of procedure led to many failures of primary union of the wound as well as to subsequent draining sinuses and recurrent abscesses, which, as some have suggested, may have infrequently been the result of incomplete removal of cyst epithelium, but rather were due to lack of the attention apparently necessary for the success of this procedure. Woldenberg and Sharpe [11] reported 100 consecutive patients from an Army hospital who were treated by excision and primary closure. Eighty per cent had draining sinuses on admission. The inci-

1. Buie, L. A.: Practical Proctology, Philadelphia, W. B. Saunders Company, 1938, pp. 480-482.
2. Lahey, F. H.: An Operation for Pilonidal Sinus, Surg., Gynec. & Obst. **48**: 109-111 (Jan.) 1929.
3. Kleckner, M. S.: Pilonidal Sinus: Its Surgical Management, Tr. Am. Proct. Soc. **37**: 166-173, 1936.
4. Rogers, H.: Pilonidal Sinus, Surg., Gynec. & Obst. **54**: 803-810 (Dec.) 1933.
5. Rogers, H., and Dwight, R. W.: Pilonidal Sinus, Ann. Surg. **107**: 400-418 (March) 1938.
6. Swenson, S. A.; Harkins, H. N., and Groesbeck, H. P.: Pilonidal Sinus, Am. J. Surg. **66**: 49-57 (Oct.) 1944.
7. Brockbank, M. J., and Floyd, J. R.: Pilonidal Cyst, Am. J. Surg. **68**: 77-79 (April) 1945.
8. Coffey, R. J.: Marsupialization of Pilonidal Cyst, U. S. Nav. M. Bull. **42**: 1326-1329 (June) 1944.
9. Mutschmann, P. N., and Mitchell, G. A.: A Treatment of Pilonidal Cysts and Sinuses, J. A. M. A. **124**: 30-31 (Jan. 1) 1944.
10. Peterson, P., and Ames, R. H.: Pilonidal Sinuses and Cysts, Am. J. Surg. **65**: 384-390 (Sept.) 1944.
11. Woldenberg, S. C., and Sharpe, W. S.: Surgical Treatment of Pilonidal Cysts, Surg., Gynec. & Obst. **76**: 164-170 (Feb.) 1943.

dence of recurrence in these cases was 2 per cent with an average time of healing of 21.5 days and a return to full military duty in an average of 28 days.

Shute, Smith, Levine and Burch [12] reported 59 cases in which complete closure of the postoperative wound resulted in complete primary healing in an average of eight days in 48 instances. There were postoperative complications in the remaining 11 cases, but these healed in an average of twenty-two days. Eleven days was the average healing time of the entire series of 59 patients.

Byrne [13] has reported that 20 of 23 patients treated by excision and complete suture of the wound had primary healing in seventeen days. The average time of healing was sixteen days; the longest time required for completion of healing was thirty days.

Bartlett [14] has strongly advocated primary closure, stating that methods of partial closure, such as marsupialization and suture of the skin to the sacrococcygeal fascia, require far longer periods of healing than do successful primary closures. If these methods are to be taken as routine forms of treatment it is necessary to assume, according to Bartlett, that: (1) there is no practical alternative to prolonged disability in order to assure cure; (2) the final result will be satisfactory in a high percentage of cases after such procedures, and (3) excision and primary closure, while ideal, cannot be accomplished with great regularity. In his report he has based his opinion on 20 cases with complete suture of the wound, 18 of which healed primarily.

Alley and Richey [15] reported 86 closed operations, in which all but 5 wounds healed by primary union. The period of hospitalization was prolonged in these 5 cases to an average of fifty-four days; however, the average number of postoperative days for the entire group was 26.5 days, including those with delayed healing time. Further, Alley and Richey reported that from a total of 85 operations for pilonidal disease, they were able to close 78 by primary suture.

Larkin,[16] in perhaps the most recent report of a large number of cases of pilonidal disease, based on experience while in military service, reported complete healing in seven days postoperatively in 90.9 per cent of 66 cases in which no previous surgical intervention had been performed. In 21 cases in which previous surgery had been done, 71 per cent only had primary healing. The average healing time in his series of cases was 26.5 days.

To supplement the published literature on this subject and to obtain the considered opinion of a group of proctologists whose work before the war included surgical experience in the management of pilonidal disease capable of serving as a basis of comparison with their own military observation, a questionnaire was addressed to thirty-five rectal surgeons who served in World War II. A brief expression was requested on present opinion in regard to the open or closed type of procedure in civilian practice together with any preference for a special technic in either case.

As has been stated, military and civilian surgeons are influenced by varied considerations, including regulations as to hospital stay and the type of duty to which the patient must be returned after discharge from the hospital. It was for this reason that nonmilitary conditions were specified in the questionnaire, and the questions were designed to secure the considered reactions of those who for the most part have now returned to private practice.

Twenty-seven answers were received; some of those who did not submit replies stated that their military service failed to include proper experience in this connection. Twenty-one of those who replied (77.7 per cent) now regard the open type of operation as the best standard procedure under the conditions stipulated. Five (18.5 per cent) believe that various closed procedures which were developed in military service will be routinely satisfactory in private practice, and one, Dr. Robert A. Scarborough,[17] while stating that "Block excision with primary closure is the procedure of choice," sets up certain exacting criteria, in the absence of which he prefers open excision with immediate skin grafting.

A few of those who favor the open type of operation still feel that a return to routine classical complete excision of the lesion associated with saucerizing of the wound and few if any sutures is desirable. Those who take this position [18] feel that while primary closure may have been justifiable in soldier personnel in order to return those whose wounds healed to duty as quickly as possible, the results were not uniformly satisfactory, the published reports did not always include sufficiently lengthy follow-up statistics and the classical procedure is dependable as to freedom from recurrence and will be satisfactory in civilian practice. A number of those who favor open procedures for the majority of cases have become convinced, however, that under certain specified conditions the wound may well be closed at the time of operative intervention. Dr. Neil W. Swinton,[17] for example, believes that for the clean pilonidal sinus in the midline in an intelligent patient who is willing to spend twelve days in the hospital, excision and primary closure is justifiable; and Dr. Tom E. Smith,[17] while also convinced that the open operation is the only surgical procedure which can be used without fear of recurrence of symptoms, states that if the last episode of infection has occurred at least six months before the operative intervention the surgical technic devised by Shute [12] will frequently be satisfactory. Several other answers [19] stress conclusions that various closed procedures, while ideal from the theoretic point of view were disappointing in cases in which any remnant of infection was present, which may explain the sweeping "directives" which finally prohibited radical procedures in several of the hospital services. In cases of this type the wounds appeared to have been well healed but shortly after the discharge of the patient from the hospital they separated because of the fact that healing beneath the skin surfaces was not secure. For that reason this group [19] would restrict the closed type of operation to a few selected cases.

A surprisingly large number of answers expressed satisfaction with the open procedure by which the lesion is marsupialized. Several [20] used the technic devised

12. Shute, F. C., Jr.; Smith, T. E.; Levine, M., and Burch, J. C.: Pilonidal Cysts and Sinuses, Ann. Surg. **118**: 706-716 (Oct.) 1943.
13. Byrne, R. V.: Pilonidal Cyst, U. S. Nav. M. Bull. **42**: 386-390 (Feb.) 1944.
14. Bartlett, W., Jr.: Pilonidal Cyst and Sinus, Surg., Gynec. & Obst. **80**: 69-74 (Jan.) 1945.
15. Alley, R. C., and Richey, C. O.: Pilonidal Cyst, Mil. Surgeon **96**: 422-423 (May) 1945.
16. Larkin, L. C.: Pilonidal Cyst, Surg., Gynec. & Obst. **82**: 694-704 (June) 1946.
17. Personal communication to the authors.
18. Burr, Harry B.; Zimmerman, Karl; LeFevre, Harry W., Jr.; Charles, John D.; Lescale, Maurice, and Green, W. W.: Personal communications to the authors.
19. Holoman, M. Browne; Reuther, T. F.; Turell, Robert; Wotherspoon, Gordon; Susnow, David A., and Cullen, P. K.: Personal communications to the authors.
20. Terrell, Robert V.; Brown, L. E.; Stockman, J. Milton; Ross, Stuart T., and Nesselrod, J. Peerman: Personal communications to the authors.

by Buie.[1] Swinton[17] incises the involved area with an electrosurgical unit removing a minimum amount of skin and lays open the underlying sinus tract, after which the wound is packed with petrolatum gauze; Dr. John C. M. Brust[17] opens the cyst, scrubs the bases with gauze, exposes all tracts and bevels the wound. No sutures are used, and the wound is packed with dry gauze under pressure. Those who have adopted marsupialization certify that the wounds heal by granulation with few complications and that a minimum of cicatrix remains. Dr. Raymond L. Murdoch[17] destroys the lining of the tract superficially.

Dr. Charles E. Pope[17] has devised a new procedure featuring a sliding gluteus maximus muscle graft by which the avascular fascial plane is covered and dead space is obliterated; he favors a closed procedure in all cases if this is done. Dr. Lester J. Johnson[17] completely excises all tracts, loosens the gluteal fascia to permit approximation without tension and uses wire for all sutures. Dr. Rufus C. Alley[17] is strongly committed to excision and primary closure in suitable cases but believes that the simplest operation is the most satisfactory. He does not favor undercutting or buried sutures, and the closure is done with stainless steel wire. Drs. Victor C. Tucker[17] and Clyde L. Wilson[17] also prefer primary closure after infection clears.

COMMENT

From these reports it is readily seen that those who advocate primary complete closure of wounds after the excision of pilonidal cysts and sinuses make a strong point in their favor. They demonstrate beyond any question that many man days can be saved during the convalescent period. On this basis, certainly, the procedure can be justified so far as it applies to the armed forces and in all probability would have far more advocates among those doing civilian practice, if, as in the Army and Navy, patients were not permitted to resume their normal activity but were obliged to remain hospitalized until healing of the wound was complete. This perhaps would be true even at the expense of an added risk of "recurrence" as compared with the so-called open operation.

The incidence of poorly healed wounds, as reported by those advocates of primary closure cited herein, compares most favorably with many reports of preference for the more conservative approach of excision and open packing.

As Barnett[21] stated, military requisites being as they are, the recently developed technics of excision and primary closure of selected cases offer the best solution to the problem; but the more conservative method of excision and open packing is indicated in many cases not amenable to radical surgical intervention and is the procedure of choice in civilian practice.

One should not pass from a discussion of the closed procedure without emphasizing a point repeatedly cited by adherents of primary closure. Success is wholly dependent on fundamental surgical principles, including complete obliteration of all dead space, meticulous hemostasis and sufficient mobilization of tissue to avoid tension on sutures. In regard to other points of technic, such as the type of suture material, the use of sulfonamide preparations and penicillin and the employment of pressure dressings, some leeway would seem permissible. As suture material fine catgut, cotton and stainless steel wire each has its advocates.

The local application of a sulfanilamide drug is commonly employed, although the comments of Burch[12] and associates regarding its use are interesting. In their first 29 cases a buffered sulfanilamide was used which seemed to cause oozing and the accumulation of serum in the wounds. Nine of their 11 complications were in this group.

Our own civilian experience with an operation including complete excision of diseased tissue, no sutures except (in larger wounds) a simple inversion of the skin edges and a rubber covered pack has been sufficiently satisfactory that we have not heretofore been tempted to adopt closed procedures. Within the past eighteen months, for example, our own patients on this type of surgical management have spent an average of six days in the hospital, have been away from work an average of fifteen days and have had all wounds healed firmly and without recurrence in an average period of six weeks and one day.

It would be unwise, however, to neglect fair consideration of the studies which have been made by military surgeons, and these definitely indicate that there will be a place in civilian practice for marsupialization and for the reconstructive primary closure of pilonidal wounds when properly indicated and properly performed.

710 Medical Arts Building.

ABSTRACT OF DISCUSSION

DR. WALTER A. FANSLER, Minneapolis: Since I saw numerous recurrences of pilonidal disease in patients operated on by the closed method in both the Army and Navy, I am more than ever convinced that operation by any closed method should be limited to a small number of patients. This paper demonstrates the fact that there is no unanimity of opinion as to what is the best type of operation. There has been a rash of papers, as Dr. Rosser pointed out, on pilonidal disease, and a great many of them were published, of course, by men in the armed forces. I do not believe that there has been too much contributed by these papers in the way of permanent conclusions concerning pilonidal disease. In most instances an insufficient time has elapsed following the operations before the papers were published. It takes months to be sure of the results after an operation for pilonidal disease, and in isolated instances there may be recurrence years later. This time lack was, of course, unavoidable under existing circumstances. Many of the soldiers and sailors were transferred to other camps or to active duty elsewhere, or the medical officer was transferred. I am convinced, particularly in civilian practice, that, primary closure is seldom to the best advantage of the patient. The hospital time and expense, the period of disability, the loss of time from work and the chances of recurrence are all far greater than where the open method is used. By the open method, with proper regard for a few fundamental principles and proper postoperative supervision, cure without further surgical intervention will almost uniformly result. That healing time is longer is not denied, but hospitalization and actual loss of time from occupation is less. There are but three fundamental causes of failure to cure this disease by the open type of operation: (1) failure to remove all of the tract; (2) failure to leave the right type of wound for healing, and (3) improper attention to postoperative care. The wound which is left must be flat. If a deep, well-like wound with steep sides is left, failure will result in many cases. In thin persons the wound is naturally flat. I think most of us have observed that the difficulty in healing occurs usually in fat people who have a deeper intergluteal fold or cleft. In them this flattened condition must be produced surgically. This is accomplished by removing a generous wedge of fat from both the sides and the ends of the incision. I emphasize at the end of the incision, because that is often not done. Laterally it is often necessary to denude the fat down to the gluteal muscles. No skin should be removed other than the diseased margins

21. Barnett, L. A.: Pilonidal Cyst, Am. J. Surg. 64: 338-345 (June) 1944.

about the openings of the sinus. After the fat has been removed the resultant skin flap is brought toward the base of the wound and stitched to the fascia covering the sacrum. This can be done by either continuous or interrupted sutures. The sutures are placed as near the midline as possible, without making undue tension on the skin flaps. This leaves but a narrow wound to heal by granulation. A pressure dressing is applied to hold the flaps in close apposition to the underlying tissues and to aid in preventing the formation of hematoma. The recent suggestion of Larkin, as to the use of a sponge rubber pad for this purpose seems excellent. In the postoperative care two conditions must be guarded against. The wound must not be allowed to bridge over too quickly. Since the wound is flat, rather than deep and trenchlike, the prevention of this condition is seldom much of a problem. Second, there may be a tendency at the ends of the wound for the skin to heal too rapidly. This produces a small pocket, and if this occurs the skin must be snipped longitudinally; otherwise healing may be delayed or a small sinus may result. This complication can often be prevented if, at the time of operative intervention, a small triangular section of skin is removed at either end of the incision.

Clinical Notes, Suggestions and New Instruments

TETANY FOLLOWING MERCURIAL DIURESIS

FRANK A. MARSHALL, M.D.
Weehawken, N. J.

Carpopedal spasm, which results from a lowering of blood calcium incident on diuresis following repeated administration of mercurial diuretics over a long period, has not been specifically reported in American medical literature. Such a possibility has been strongly suggested recently in a reply in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION to a query[1] on "Muscle Cramps Following Mercurial Diuretics." The subject is dismissed with the notation that "at times, loss of calcium in the urine may be excessive and a trial of calcium gluconate, intramuscularly or intravenously, shortly before the diuresis is initiated may be effective."

Several reports of cases have appeared on this subject in foreign medical literature. The case of Pavel and others[2] closely parallels the present one. Both patients were subject to long continued and repeated injections. In both cases blood calcium was approximately 7 mg. per hundred cubic centimeters after injection.

In the second case occurring abroad,[3] Sendel reports a fatal issue in an edematous Hindu infected with ancylostoma. Typical carpopedal spasm and laryngismus developed immediately after the injection, despite the use of 2 cc. of colloidal calcium and the oral administration of 2 Gm. of ammonium chloride two hours previously. Five minutes after injection of the mercurial (Neptal, an addition product of mercury acetate and salicylaminoallylacetic acid) the patient expired. This case differs from Pavel's and the appended one in the time elapsing after the injection. Time for diuresis was not available; hence, the effect of a massive outflow could not have been causative in Sendel's patient, who died following his second injection of a mercurial. Malnutrition and chronic hookworm infestation may have contributed to this explosive fatal result. This case may explain one of the modes of exitus following injection of these mercurials.

Nothmann[4] observed a lowering of serum calcium in some cases in 1933.

The emphasis in American literature[5] has been on the loss of chlorides (10 per cent or more of serum chlorides) with the use of ammonium chloride as the therapeutic agent. Muscular cramps are referred to as "similar to heat cramps," which may be in error if closer examination of the patient is made. The present patient referred to her pains as "cramps" when she was observed with typical carpopedal spasm.

REPORT OF CASE

History.—Mrs. E. K., a moderately obese woman aged 60, was seen in her home over a period of five months for congestive failure, hypertensive heart disease and emphysema. On May 17, 1946 she appeared flushed, cyanotic and dyspneic, with a blood pressure of 200 systolic and 96 diastolic; the pulse rate was 85. Significant past history revealed that a thyroidectomy had been performed in Switzerland in 1931 for a probable substernal goiter, as the patient "couldn't catch breath" prior to the operation because the mass "squeezed on breathing pipe." She was treated in 1935 for bronchial asthma and hypertension. To secure relief from dyspnea, she sojourned to Arizona in 1935. In 1943 the first mercurial was injected. These intramuscular injections now total over two hundred. As a result, both buttocks are considerably indurated. When a needle is inserted into them, the fibrous, hard nature of the subcutaneous and muscular tissue can be noted. Veins in her arms are not palpable or visible, partly as a result of obesity and partly from previous attempts to give intravenous medication (theophylline ethylenediamine, epinephrine and the like). Tetany was never experienced following thyroidectomy.

Physical Examination.—Physical examination reveals an extremely hypersensitive patient who readily jumps when touched. The scar of the previous thyroidectomy is barely visible. Thyroid masses are not observed. The veins of the neck are distended, even in a semiupright position.

The skin, particularly that of the neck, is flushed and cyanotic. The lungs are emphysematous. There are dulness and diminished breathing posteriorly at the base of the right lung. Wheezing is heard anteriorly over the chest on both sides.

The apex beat is not felt, but heart sounds are best heard in the axilla, where they sound muffled. The rhythm is regular with a rate of 85 per minute. Adventitious sounds are not heard. In the abdomen, shifting dulness is not noted. The liver is enlarged to six fingerbreadths below the costal margin, which is tender yet smooth. Sacral pitting edema (++) and dependent edema (+++) over both legs is present. The eyes are flushed. Retinal sclerosis is present. The disks are normal. Neither hemorrhage nor exudate is noted.

Laboratory Data.—Laboratory reports are as follows: Urinalysis indicated 3 plus albumin; reaction acid; specific gravity 1.026; white blood cells 1 plus; red blood cells 2 plus, and epithelial cells 3 plus. The rest of the urinalysis is within normal limits.

Examination of the blood reveals: sugar 125 mg., creatinin 1.8 mg., nonprotein nitrogen 35.5 mg., urea 16.1 mg., calcium (April 24, 1946) 7.4 mg. and phosphorus 5.5 mg. per hundred cubic centimeters.

Electrocardiographic tracings indicate that the P_1 is isoelectric, the P_2 and P_3 inverted, the PR interval 0.16 second, the QRS complex 0.07 second, the QT interval 0.40 second, with an auricular and ventricular rate of 80 per minute. The T waves in leads 1, 2 and CF_4 are inverted. The CF_2 lead has a diphasic T wave. The QRS complexes in leads 1, 2 and 3 are slurred. The ST_1 interval is depressed 1.5 mm.

Present History.—The patient has been digitalized and continued on maintenance doses of digitoxin with 0.4 mg. on one day and 0.2 mg. on the next. Theophylline ethylenediamine, phenobarbital and pentobarbital sodium have been given as required. Insomnia is one outstanding complaint. One evening the patient took 9 grains (0.58 Gm.) of Seconal sodium without any benefit. Recurrent episodes of congestive failure and noc-

1. Muscle Cramps Following Mercurial Diuretics, Queries and Minor Notes, J. A. M. A. **131**: 1104 (July 27) 1946.
2. Pavel, I.; Pavenesco Podeano, A., and Tanasesco, G.: Tetany and Hypocalcemia Following the Long Repeated Administration of Mercurial Diuretics, Compt. rend. Cong. franç. de méd. **24**: 90, 1937.
3. Sendel, D. O.: Death in Tetany Following Intravenous Mercurial Diuretics, J. Christian M. A. **19**: 109 (May) 1944.
4. Nothmann, M. M.: Klin. Wchnschr. **12**: 159 (Jan. 28) 1933.
5. Cattell, McK., in Treatment of Edema by Drugs, Conferences on Therapy, New York State J. Med. **44**: 280 (Feb. 1) 1944. Footnote 1.

turnal dyspnea have been frequent for the past five months, responding only partially to treatment. An annoying symptom has been vomiting, which occurs in spells. Mercurial diuretics (mersalyl and mercurophylline injection chiefly) have been given at intervals of three to ten days as required by edema and congestive failure.

Tetany Episode.—On April 18, 19 and 20, vomiting was in abeyance. On April 21, the patient vomited slightly at 5 a. m. following the ingestion of 15 grains (0.97 Gm.) of enteric coated ammonium chloride. On Monday, April 22, she appeared better than usual, without extraordinary presenting symptoms or signs except edema (+++) of the legs. Mercurophylline, 1 cc. (Mercupurin) was injected at 10:15 a. m. into the left buttock intramuscularly. At 11:15 a. m., and prior to diuresis, the patient felt a "tightening" in her toes. A large quantity of urine (quarts—but she failed to measure amounts) was passed between 2 and 5 p. m. Spasms in the feet, severe by now, increased considerably in intensity. When I was summoned to see the patient at her home at 9:25 p. m., somewhat less than twelve hours following the injection, typical tetany was present with carpopedal spasm distinctly evident bilaterally. Adducted thumbs could be abducted only with considerable effort and with pain to the patient. Severe cramps and spasms in the leg muscles, in addition to flexion of the toes, were present. Laryngospasm and diffuse abdominal pain were evident. The Chvostek sign could not be elicited. Extreme hyperexcitability of the neuromuscular system was noted; muscular spasmodic contractions resulted on merely touching the patient lightly.

Calcium gluconate, 10 cc. of a 10 per cent solution, was administered intramuscularly. Orally, ten wafers, each containing dicalcium phosphate (9 grains, or 0.58 Gm.), calcium gluconate (6 grains, or 0.39 Gm.) and vitamin D (666 units), were given as soon as the patient could swallow them. Morphine sulfate (¼ grain, or 0.015 Gm.) was given to alleviate pain and restlessness.

On the following day, April 23, the administration of 10 cc. of 10 per cent calcium gluconate (1.3 grains, or 0.08 Gm.) was repeated by intramuscular injection both in the morning and in the evening. Tetany was subsiding by the next morning and disappeared by that evening. Ill effects from the parenteral administration of calcium were not observed, in spite of digitalization. The electrocardiogram had shown typical ST deviation characteristic of the action of digitalis.

On April 24, in spite of the ingestion of calcium wafers and the use of parenteral calcium to relieve tetany, the blood serum calcium was only 7.4 mg. but the serum phosphorus was 5.5 mg. per hundred cubic centimeters. The blood pressure was now 198 systolic and 96 diastolic, as compared with 214 systolic and 120 diastolic on the previous day.

On April 29, recurring edema and clinical interest suggested another trial with a mercurial diuretic. A solution of 1 cc. of mersalyl theophylline (0.1 Gm. mersalyl and 0.05 Gm. theophylline) was injected into the right buttock at 11 a. m. Vomiting had not occurred for several days previously, nor was there any dyspnea. Four quarts (3,785 cc.) of urine were passed after the injection. At 9 p. m. the patient noticed spasms (cramps) in her feet which lasted throughout the night. She ingested calcium wafers at 10 p. m. She stated that considerable relief was experienced on gently rubbing the calves of the legs with alcohol.

On May 7 at 11 a. m., injection of 1 cc. of mersalyl and theophylline was repeated because of edema of the legs and other signs of congestive failure. Three quarts (2,839 cc.) of urine were passed. At 11 p. m. tingling of the fingers, tensing of the toes and severe cramp in the muscles of the right calf, which was felt by the examiner, was relieved by the ingestion of five wafers of dicalcium phosphate and calcium gluconate, the injection of morphine and the application of alcohol to the legs.

Subsequent injections of mercurials have not produced any definite signs of tetany. The patient continues on milk and takes her wafers of calcium as she pleases. She is hyperexcitable and jumps readily when touched.

COMMENT

The occurrence of evidences of tetany on three separate occasions in this patient following the parenteral use of mercurial diuretics stresses the need for thought on the mobilization and excretion of electrolytes other than the chlorides, although the latter continues to be among the most important. Gratifying relief in this case was obtained through the use of parenteral and oral calcium. Blood calcium levels were reduced following the attack to about the same level as that reported abroad in another case. It appears that tetany is more likely in patients who may ordinarily have a borderline deficiency, which is further reduced below this critical level by excessive diuresis.

The use of parenteral and oral calcium in moderate doses lacked deleterious effects in this fully digitalized patient.

On the occasion of the first tetany reaction, it was observed that this patient had signs of tetany prior to the excessive diuresis. Sendel's patient, who died five minutes after receiving an intravenous injection of a mercurial, displayed signs of tetany without any preceding diuresis. These observations suggest some mechanism other than profuse diuresis as a cause for electrolyte imbalance. Possibly the normal interstitial fluid and its electrolytes surrounding the muscle fibers, including cardiac muscle, are mobilized and reduced too rapidly, causing symptoms.

CONCLUSION

1. Tetany that followed the injection of diuretic mercurials and recurred on three separate occasions was relieved by the administration of calcium. The patient showed a low blood calcium level.

2. Over two hundred injections have been given to date in a period of three years to this patient.

3. Signs of electrolyte imbalance may be in evidence prior to diuresis. Some mechanism other than the diuresis is probably operative.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, *Secretary.*

EASTMAN RADIANT ENERGY LAMPS ACCEPTABLE

Manufacturer: The J. H. Eastman Company, 1304 Harper Avenue, Detroit 11.

The Eastman Radiant Energy Lamps, models 260 and 375, are infra-red generators. The lamps may be used for administering local radiant heat for therapeutic purposes. According to the firm, the power required for model 260 lamp, serial #535, at 120 volts is 260 watts and for the model 375, serial #415, at 120 volts is 375 watts.

The firm submitted a report demonstrating the ability of the Eastman Radiant Energy Lamps, models 260 and 375, to produce "deep heat." The technical procedure used in making the tests was that recommended by the Council on Physical Medicine of the American Medical Association (THE JOURNAL, April 20, 1935, p. 1413) for obtaining the temperature rise in deep muscle tissue. The result obtained when using either model showed that 0.8 degree F. was the average temperature rise in the deep tissues of the thigh with twenty minute applications. Blistering was noted on the second heat application in the series of tests. Precautions should be taken against overheating and the lamp-skin distance adjusted accordingly. By using special filters the firm claims that the long wave infra-red rays are filtered out. Experimental data supplied by the promoter fails to substantiate this statement.

While the apparatus is acceptable as a source of infra-red radiation for local heat, the firm has not shown that the lamps are more efficacious therapeutically than a conventional infra-red lamp equipped with an ordinary tungsten filament bulb.

The Council voted to include the Eastman Radiant Energy Lamps, models 260 and 375, in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following report.

AUSTIN SMITH, M.D., *Secretary.*

STATUS REPORT ON OINTMENTS CONTAINING ESTROGENIC SUBSTANCES

A drug manufacturer recently submitted to the Council a cream the chief active constituent of which was an estrogen. The product as marketed by the firm concerned was to be sold only on prescription. The use of such preparations has been the subject of considerable investigation, but on the basis of the existing evidence it would seem that there is need for much more work before this technic of application of an estrogenic substance can be generally adopted. The effective dosage obtained following the topical application of an estrogenic substance would be highly unpredictable owing to differences in absorption through the skin. There do not yet seem to be available data that would justify a belief that the local administration of estrogenic substances may be as satisfactory as other routes of administration.

From time to time there appear reports of the misuse of such preparations, especially when they fall into the hands of individuals unqualified to judge the needs of their bodies. When such possibility, or probability, exists the packages containing such preparations should bear adequate warning of the dangers involved in their use. The Council has previously published a report on cosmetics containing hormones (THE JOURNAL, June 16, 1945, p. 515) and has pointed out some harmful possibilities that may exist. Until more evidence is accumulated, the Council is of the opinion that the use of creams or ointments containing estrogenic substances seems unpromising on the basis of present available data and should be reserved for those qualified to evaluate properly the results that may be obtained following the use of such preparations.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

HEPARIN SODIUM.—The hydrated sodium salt of a naturally occurring, complex organic polymer possessing anticoagulant properties. The chemical structure of heparin has not been fully established. It is considered to be a dextrorotatory polysaccharide made up of hexosamine and hexuronic acid units containing sulfuric acid ester groups. Heparin is found in a large number of body tissues. Heparin sodium may be prepared from liver or lung tissue by a modification (Kuizenga and Spaulding: *J. Biol. Chem.* **148**:641, 1943) of the method of Charles and Scott (*Biochem. J.* **30**:1927, 1936). The product is further purified for medicinal use.

Heparin sodium is standardized to possess not less than 100 units of anticoagulant activity per milligram of dry material, by the sheep plasma coagulation method (Kuizenga, Nelson and Cartland: *Am. J. Physiol.* **139**:612, 1943). The standard of potency is the Provisional International Standard, a dried preparation of the sodium salt of heparin to which has been assigned a potency of 130 units per milligram (*League of Nations, Bulletin of the Health Organization*, Vol. X, No. 2, p. 151, 1942-1943). This Provisional International Standard is to be used only as a standard of potency.

Actions and Uses.—Heparin sodium has the property of inhibiting blood coagulation. It may aid the normal body to maintain blood in a fluid state as traces are detectable in the blood. Very little is known concerning the metabolism, excretion and fate of heparin sodium in the body. Its anticoagulant action appears to be effected by action on the thrombin, which with fibrinogen forms fibrin.

The exact status of heparin sodium in surgery and medicine has not been determined, but it is claimed to be of value as a substitute for citrate in blood transfusions, in an attempt to prevent postoperative thrombosis and possibly thrombosis of other origin, the prevention of recurring thrombosis in phlebitis and pulmonary embolism, and other uses. It has been used alone and with sulfonamides in the treatment of subacute bacterial endocarditis, but much work remains to be done before this procedure can be generally accepted; results have not been impressive.

Dosage.—The potency of heparin sodium is expressed in units. Ampul solutions keep indefinitely and may be sterilized by boiling or autoclaving at 110 C. for thirty minutes. The substance is inactive orally and is usually injected intravenously. It may be given by single injection or continuous intravenous drip, the infusion being adjusted by watching the coagulation time. The clotting time should be maintained between fifteen and twenty minutes. If a chill develops or spontaneous bleeding occurs, the drug should be stopped. When the interrupted dose method is employed, 50 mg. (5,000 units) may be administered at intervals of four hours up to a total of 250 mg. per day. For continuous drip, 100 to 200 mg. (10,000 to 20,000 units) is added to 1,000 cc. of 5 per cent sterile dextrose or isotonic sodium chloride solution. The flow may be started at about twenty drops per minute.

Tests and Standards.—

Heparin sodium occurs as a white to lightly colored, amorphous, gumlike powder. It is very soluble in water but practically insoluble in alcohol, acetone, benzene, chloroform and ether. The *p*H of a 1 per cent solution of heparin sodium lies in the range 6 to 7 at 25 C.

Place 5 cc. of 0.005 per cent toluidine blue O solution (made by dissolving 25 mg. of toluidine blue O in 500 cc. of water containing 1 cc. of diluted hydrochloric acid) in a test tube, add 5 cc. of water and 1 cc. of 1 per cent heparin sodium solution: the color of the mixture changes from blue to reddish blue; add 2 cc. of petroleum ether and shake the mixture vigorously for one minute. Allow the emulsion to break: the color of the solution returns to pale blue and a purple precipitate collects in the interface between the liquids.

Place 1 cc. of 1 per cent heparin in a test tube; add 2.5 cc. of *o*-phenanthroline ferrous complex solution (U. S. P. XII, p. 739): a red precipitate forms.

Fuse about 50 mg. of heparin sodium with a small piece (2 cmm.) of metallic sodium in a test tube; cool, add 5 drops of ethanol, leach the fused mass with 5 cc. of water and filter: the filtrate responds to tests for cyanide and sulfide, indicating the presence of nitrogen and sulfur respectively.

Add 1 drop of ammonium hydroxide solution and 3 drops of 30 per cent hydrogen peroxide solution to 0.5 cc. of 1 per cent heparin sodium solution contained in a test tube. Heat on a water (steam) bath for ten minutes: no cloudiness results which cannot be cleared by making the solution acid to congo red, by the addition of just sufficient diluted hydrochloric acid (*barium ion*).

Mix 5 cc. of 1 per cent heparin sodium solution with 5 cc. of sulfosalicylic acid reagent (dissolve 20 Gm. of sodium sulfate decahydrate in 80 cc. of water, cool to 35 C., add 5.0 Gm. of sulfosalicylic acid, dissolve and dilute to 100 cc.). Heat the mixture to boiling: no cloudiness should be discernible (*protein*).

Ash 0.1 Gm. of heparin sodium in the presence of sulfuric acid in a tared porcelain crucible: the sulfated ash amounts to not more than 40.5 per cent of the dried substance.

Dry about 0.1 Gm. of heparin sodium for twenty-four hours at room temperature over phosphorus pentoxide in a vacuum desiccator at a pressure not above 5 mm. of mercury: the loss in weight is not more than 12 per cent.

Heparin sodium shall meet the pyrogen test described in the U. S. P. XII when solutions containing 1,000 units per cubic centimeter are injected in a dosage of 2.0 cc. per kilogram of body weight.

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Solution Heparin Sodium: 10 cc. vials. Each cubic centimeter contains 10 mg. of heparin sodium, preserved with 0.5 per cent phenol.

UPJOHN COMPANY, KALAMAZOO, MICH.

Solution Heparin Sodium: 10 cc. vials. Each cubic centimeter contains 10 mg. of heparin sodium, preserved with 0.5 per cent chlorobutanol.

SODIUM ASCORBATE (See New and Nonofficial Remedies, 1946, p. 633).

The following dosage form has been accepted:

WILLIAM H. RORER, PHILADELPHIA

Solution Sodium Ascorbate: 100 mg. in 1 cc. ampuls. Each cubic centimeter contains sodium ascorbate equivalent to 100 mg. (2,000 international units) ascorbic acid and thiourea 0.01 per cent in sterile aqueous solution.

PENICILLIN IN OIL AND WAX (See the Supplement to New and Nonofficial Remedies, 1946, p. 15).

The following dosage form has been accepted:

PREMO PHARMACEUTICAL LABORATORIES, INC., NEW YORK

Penicillin (Calcium) in Oil and Wax: 1 cc. syringes or 5 cc. vials, 300,000 units per cubic centimeter.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1946, p. 618).

The following dosage form has been accepted:

E. S. MILLER LABORATORIES, INC., LOS ANGELES

Tablets Thiamine Hydrochloride: 5 mg. and 10 mg.

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SATURDAY, APRIL 5, 1947

THE ATLANTIC CITY SESSION

In the Organization Section in this issue of The Journal appears an announcement relative to the General Scientific Meetings to be held in connection with the Atlantic City session, June 9-13. The programs of the General Scientific Meetings provide for discussions of subjects of special and timely interest to the medical profession and for panel discussions of the modern management of heart disease, emergency surgery and antibiotic therapy. Participating in the programs and in the panel discussions will be Professor George W. Pickering of London, Professor Herbert John Seddon of Oxford, England, and Sir Howard Florey of Oxford, noted for his clinical research on penicillin.

The centennial committee also announces that the Philadelphia Festival Orchestra, made up entirely of members of the world famous Philadelphia Orchestra, will provide music for the opening general meeting on Tuesday night, June 10, under the leadership of concertmaster and associate conductor Alexander Hilsberg. Mr. Hilsberg was recently appointed head of the orchestra department of the Curtis Institute in Philadelphia.

The Board of Trustees announces a dinner to be given to the presidents and other officers of organizations associated with medicine, distinguished publishers, industrialists and statesmen. This dinner will be held Saturday evening, June 7, in Atlantic City. The speakers on this occasion will be General Omar Bradley of the Veterans Administration; Mr. Basil O'Connor, chairman of the American Red Cross and president of the National Foundation for Infantile Paralysis, and Mr. H. W. Prentis Jr., president of the Armstrong Cork Company.

Additional announcements relative to various features of the annual session will be made weekly under the heading of Association News in The Journal. The preliminary program and complete information relative to various other features of the annual session will be published in The Journal for May 3.

OXALIC ACID

Oxalic acid, one of the earliest known organic acids, was prepared in crystalline form by Scheele in 1785. The toxicity of this compound has long been recognized and the adverse effects of its administration are attributed to its chief chemical reaction, namely the formation of a highly insoluble precipitate with calcium. However, many of the common articles of our diet contain oxalates [1] and, conversely, on experimental rations extremely poor in preformed oxalate, this substance continues to be present in the blood and urine. Oxalic acid, it has been claimed,[2] is a product of intermediary metabolism, particularly of carbohydrate.

The conviction that oxalate in food exerts a deleterious influence on the utilization of calcium was enhanced by the observation of Finke and Sherman [3] that experimental animals retained far less calcium when a portion of the dietary calcium was provided by spinach than when included as kale. The oxalate content of spinach and the lack of oxalate in kale were associated with the difference in utilization of the calcium of the diets. Other studies [4] of similar nature confirmed this general thesis. However, still other observations have failed to support the foregoing view; with diets adequate in vitamin D, calcium and phosphorus, as much as 0.9 per cent oxalate did not adversely affect growth and skeletal development in rats.[5] Again, in a study on young children, it was shown that neither spinach nor oxalate in modest amounts interfered with the utilization of calcium.[6]

Gortner and his co-workers [7] contributed to the physiologic chemistry of oxalic acid in another direction. These workers had previously demonstrated that the enamel of the teeth of rats is etched by solutions of sulfuric, citric, lactic and phosphoric acids with a p_H of 2.6. Oxalic acid of similar p_H not only did not have this effect but also protected the enamel against the other acids. Examination of the teeth after giving oxalic acid or sodium oxalate showed that there was present on the surface of the enamel a calculus-like encrustation which apparently exerted a protective action against erosion by the other acids. These observations recall the observation [8] that the oxalate ion reduces the solubility of powdered dental enamel in solution with an acid reaction.

The need for new investigations of the physiologic chemistry of oxalic acid is apparent from the foregoing

1. Smith, A. H., and Orten, J. M.: J. Nutrition **13**: 601 (June) 1937.
2. Loeper, M.: Nutrition **3**: 1, 1933. Suzuki, S.: Jap. J. M. Sc., II. Biochem. **3**: 23 (Feb.) 1935.
3. Finke, M. L., and Sherman, H. C.: J. Biol. Chem. **110**: 421 (July) 1935.
4. Spiers, Mary: J. Nutrition **17**: 557 (June) 1939. Fairbanks, B. W., and Mitchell, H. H., ibid. **16**: 79 (July) 1938. Finke, M. L., ibid. **22**: 477, 1941.
5. MacKenzie, C. G., and McCollum, E. V.: Am. J. Hyg. **25**: 1 (Jan.) 1937.
6. Bonner, Priscilla; Hummer, Frances C.; Bates, M. F.; Horton, J.; Hunscher, Helen H. A., and Macy, Icie G.: J. Pediat. **12**: 188 (Feb.) 1938.
7. Gortner, R. A.; McCay, C. M.; Restarski, J. S., and Schlack, C. A.: J. Nutrition **32**: 121 (Aug.) 1946.
8. Buonocore, M. G., and Bibby, B. G.: J. Dent. Res. **24**: 103, 1945.

account of current conflicting views. The clinician is deeply interested, for the precipitation of calcium oxalate in the renal tubules, ureters and urinary bladder is said to account for some 40 per cent of the cases of urolithiasis. Furthermore, with the recognition that the dicarboxylic acids take part in the metabolism of all the major foodstuffs, the biologic significance of oxalic acid requires more clearcut definition.

WHAT IS "NORMAL"?

What is the meaning of the term "normal" as applied to the human body? The results of physical examinations and laboratory tests are often recorded with the word "normal" jotted down with an easy assumption of accuracy entirely unjustified by the facts. In a discussion of this subject Ryle [1] says that "normal" is commonly considered as synonymous with "healthy"; but that label too needs better definition.

Probably most physicians simply mean by "normal" that an obviously demonstrable pathologic lesion has not been found. Yet, as Ryle points out, even this is questionable. Palpable epitrochlear glands, for example, which may be as large as a cherry stone, are demonstrable in about 40 per cent of adult men, unrelated to the presence of syphilis or other generalized disease of the lymph nodes. To say that the presence of palpable epitrochlear glands, therefore, is or is not normal raises an interesting question. A similar variability, Ryle says, obtains in respect to practically all measurable features of anatomy and physiologic activity. Organs and structures have a range of variation in size, shape or position. With the introduction of chest radiography, the diagnosis of "hilar tuberculosis" based on misinterpretation of the normal root shadows was once fashionable. Expensive abdominal supports and unsound surgical procedures which formerly were commonly employed led, after the introduction of the barium meal, to the frequent diagnosis of dropped stomach or dropped bowel. Variation in the human body is inherent in the race.

Where bodily function is concerned a sharp demarcation between inborn variations of health and induced variations of disease is not possible. Furthermore, a structure or function showing an extreme degree of variation from the mean may contribute to certain predispositions to disease or injury. The tall man, Ryle says, is more likely to hurt his head passing through a doorway. Some one with a native hyperchlorhydria and rapidly emptying stomach may be more likely to develop or retain a duodenal ulcer than some one with a less active organ and low gastric acidity. A complete standardization of structure and function would be incompatible with life. Variability of one individual from another and variability influenced by age, sex and activity in the population or species are essential to survival.

The chief difficulties in clinical medicine are encountered at the extreme ranges of natural variation. When does the pulse rate cease to be "normal"? At what point do the heart sounds, the strength of the knee jerk, the size and characteristics of the tonsils or the state of the thyroid pass from "normality" to the stage of disease? These are fundamental questions complicated in practice by the fact that the clinician is preoccupied with the sick and lacks access to and possibly interest in healthy controls. This largely one-sided view should not be overlooked by the practicing physician if his concept of normality is to imply, as it should, merely that the structure or function examined lies within a "range" not apparently reflecting any disease process.

Some variation, as Ryle says, can be measured and more accurate definitions given of the "healthy range." The pulse rate, the body temperature, the hemoglobin and the basal metabolic rate are examples belonging to this group. For each of these, however, constant reevaluation is necessary. There is no sharp dividing line between health and disease. The dictionary definition of "normal" does not therefore mean the same as the term does when employed by physicians in reference to the human body.

1. Ryle, John A.: The Meaning of Normal, Lancet 1:1 (Jan. 4) 1947.

Current Comment

MEDICAL SERVICE AREAS

Elsewhere in this issue appears an article prepared by the Bureau of Medical Economic Research which describes a new approach to the study of the supply of medical service in the United States. The heretofore accepted measure of supply has been the number of physicians per county. This number is used to express a ratio of the number of people per physician. The method of measurement now being developed by the Bureau is derived from those retail marketing area principles which are applicable to the study of medical service areas. Such service areas would be far more realistic, for they would be based on a conception of medical service which is not confined within political borders. A physician does not limit his practice to those patients who reside within the county in which his office is located. His service may reach beyond the county. The geographic area in which the physician actually conducts his practice is the medical service area which must be used in any realistic study of the supply of medical care. The development of medical service areas for the entire country is an important step in the creation of a true economic picture of the effective distribution of physicians.

EDWARD L. BORTZ SUCCEEDS TO PRESIDENCY

As announced in the Organization Section in this issue, Dr. Olin West, who was chosen President-Elect of the American Medical Association in 1946, has resigned the office because of ill health. According to the Constitution and By-Laws of the Association, Dr. Edward L. Bortz, Philadelphia, elected Vice President in 1946, succeeds to the office of President-Elect and will be inaugurated as President at the annual session of the Association to be held in Atlantic City, June 9-13. Dr. Bortz was born in Greensburg, Pa., Feb. 10, 1896. He received the A.B. degree from Harvard in 1920 and the degree of M.D. in 1923. Following his internship at the Lankenau Hospital from 1923 to 1925, he studied abroad at the University of Vienna and the University of Berlin during 1925-1926 and gave further special attention to pathology at the Mayo Clinic and the University of Illinois Medical School. He then became instructor in the Department of Pathology at the University of Pennsylvania School of Medicine and the Graduate School of Medicine from 1930 to 1932. He has been associate professor of medicine at the Graduate School of Medicine at the University of Pennsylvania since that time and also chief of Medical Service B at Lankenau Hospital. He has been a director of the Philadelphia County Medical Society and chairman of its committee on public relations and was president in 1940. He has also been chairman of the Committee on Scientific Business of the College of Physicians of Philadelphia and chairman of the Committee for the Study of Pneumonia Control of the Pennsylvania State Medical Society. Dr. Bortz has been a Fellow of the American College of Physicians since 1929 and received the certificate of the American Board of Internal Medicine in 1937. He has been assistant editor of the Cyclopedia of Medicine since 1929. In 1939 he received the Meritorious Service Medal for distinguished service to the commonwealth of Pennsylvania, the award being made by former Pennsylvania Governor George H. Earle. In 1943 he was presented with the Founders Medal of the Association of Military Surgeons for exceptional services rendered in connection with the arrangements for its assembly in Philadelphia. During World War II he was on active duty as lieutenant commander and later promoted to captain in the United States Navy, serving from January 1942 through January 1944. He was made a member of the Council on Scientific Assembly of the American Medical Association in 1942 and became its chairman in 1945. He is also chairman of the Committee on National Emergency Medical Service of the American Medical Association. He was a member of the House of Delegates in 1945. Dr. Bortz has served the Association efficiently; to him may be assigned much of the credit for the arrangement of excellent programs in the General Scientific Meetings held during his membership on the Council on Scientific Assembly.

EDWARD L. BORTZ, M.D.

RUBELLA IN PREGNANCY

The tragic effects on the child that may follow rubella in the early months of pregnancy are now widely known. The first Australian observations have been confirmed by numerous reports. The association of rubella in pregnancy with deaf-mutism is pointedly emphasized in a recent letter by Sanderson, an English physician [1] whose granddaughter aged 6 years is a deaf-mute. Her mother had German measles in the third month of her pregnancy. An excellent little school was found for the child. In this school there were fifteen deaf-mute children, "all of the same age and all apparently victims of an epidemic of German measles" in 1940. In thirteen of these fifteen children the history revealed that the mother had German measles in the early months of pregnancy. This is, as the letter says, "strong evidence on the problem of etiology." The tragedy of deaf-mutism and of still other disasters that have come to be associated with rubella occurring in early pregnancy naturally brings up the question of inducing abortion in pregnancy complicated by rubella.

1. Sanderson, Robert: Rubella and Pregnancy, Brit. M. J. 1:199 (Feb. 1) 1947.

ORGANIZATION SECTION

THE ATLANTIC CITY SESSION

GENERAL SCIENTIFIC MEETINGS

Monday, June 9

Presiding Officer: Clyde L. Cummer, Cleveland

2 P. M.

The Antihistamine Drugs. — George L. Waldbott, Detroit.
The Emergency Treatment of Vascular Occlusions. — Edgar V. Allen, Rochester, Minn.
Significant Trends in Cancer Research. — Stanley P. Reimann, Philadelphia.
Cardiac Recovery. — Professor George W. Pickering, London, England.

Intermission

Presiding Officer: Henry R. Viets, Boston

3:30 P. M.

Panel: The Modern Management of Heart Disease.

Moderator: Paul D. White, Boston

Diuretics. — Arthur C. de Graff, New York.
Digitalis. — Harry Gold, New York.
Quinidine. — Louis N. Katz, Chicago.

Distinguished Guest: Professor George W. Pickering, London, England
"Hypertensive Encephalopathy."

Question and Answer Period.

5 P. M.

General Summary. — Paul D. White, Boston.

Tuesday, June 10

Presiding Officer: Clyde L. Cummer, Cleveland

9 A. M.

The Obstructive Prostate. — Frank Hinman, San Francisco.
Psychosomatics: The Liaison Between Internal Medicine and Psychiatry. — Edward A. Strecker, Philadelphia.
Poliomyelitis. — Hart E. Van Riper, New York.
Nerve Grafting in the Limbs. — Professor Herbert John Seddon, Oxford, England.

Intermission

Presiding Officer: Charles H. Phifer, Chicago

10:30 A. M.

Panel: Emergency Surgery.

Moderator: R. Arnold Griswold, Louisville, Ky.

Head Injuries. — Barnes Woodhall, Durham, N. C.
Chest Injuries. — Brian B. Blades, Washington, D. C.
Abdominal Injuries. — Pat R. Imes, Louisville, Ky.
Extremities. — Mather Cleveland, New York.

Distinguished Guest: Professor Herbert John Seddon, Oxford, England

Question and Answer Period.

12 M.

General Summary. — R. Arnold Griswold, Louisville, Ky.

Presiding Officer: L. W. Larson, Bismarck, N. D.

2 P. M.

Skin Problems of the Elderly. — Oliver S. Ormsby, Chicago.
Cancer of the Uterus. — Emil Novak, Baltimore.
Radioactive Products in Medicine. — Stafford Warren, Los Angeles.
New Antibiotic Agents. — Sir Howard Florey, Oxford, England.

Intermission

Presiding Officer: Clyde L. Cummer, Cleveland

3:30 P. M.

Panel: Antibiotic Therapy.

Moderator: Wesley W. Spink, Minneapolis

Streptomycin. — Chester S. Keefer, Boston.
Chemotherapy in Surgery. — John S. Lockwood, New York.
Development of Bacterial Resistance to Antibiotics. — Charles Phillip Miller, Chicago

Distinguished Guest: Sir Howard Florey, Oxford, England

Question and Answer Period.

5 P. M.

General Summary. — Wesley W. Spink, Minneapolis.

SIR HOWARD FLOREY

Medical Economics

MEDICAL SERVICE AREAS IN THE UNITED STATES

FRANK G. DICKINSON, Ph.D.
Director of the Bureau of Medical Economic Research
Chicago

A study of the supply of medical service can best be made by disregarding the method now in general use, that of determining the number of people per physician in counties, townships or other political areas. An entirely new concept, based on established marketing principles, would provide a considerably more meaningful measurement and would replace what is now inadequate and misleading information on the supply of physicians in the United States.

Before explaining this new concept, one must first examine the old one, to find wherein it errs. It is customary to state the population in relation to the number of physicians as a ratio of population to physicians within a specific area. X County has 1 physician to 750 of population; Y County has 1 physician to 1,500 of population. These statistics are accurate, but how significant are they? Counties are political units, but medical care is an economic service that has no relation to political boundary lines. A physician is not a county coroner or a county sheriff. Many of his patients may come from areas outside the county in which his office is located. Our attention is called to the fact that approximately eighty counties do not have a resident physician. Many counties do not have a resident plumber or a resident electrician. A county is a political area, and these tradesmen—like physicians—render an economic service.

A particularly vivid case in point is demonstrated on a certain county map of the state of Minnesota, each county having been shaded according to the number of physicians per thousand of population. White counties had 1 physician to 1,000 population or less. Black counties had 1 physician to 3,000 or more. Various other shadings were included between the two extremes. Hennepin and Ramsey counties, locale of Minneapolis and St. Paul, were, of course, white. Anoka County, which borders these two counties, was black, indicating a ratio of 1 physician to 3,000 or more people. Does this mean that the people living in Anoka County could not obtain adequate medical care because of the small number of physicians residing in this county? It would be wrong to assume that this was the case. Actually, the population of Anoka secures its medical care, does most of its shopping and works in the centers located in the two adjacent counties not many miles distant. There is urgent need for a new map of medical service, one that will not show county lines but will be based on actual medical service areas.

To define a medical service area, we would do well to consider principles applied to the study of retail trading areas. Every store has an area or territory from which it can logically expect to secure customers. The news counter in an office building can expect to sell to people entering the building. A neigborhood grocery store may draw customers from a radius of a few blocks. A department store in the central shopping district of a large city may attract customers from a distance of many miles. A retail trade area means the territory from which the stores in a town, or a district within a city, secure or can secure a considerable part of the purchases made by the consumers. A physician renders service to people residing in a territory closely related to the retail trading area.

There are three types of retail trade areas: for fashion goods, for service goods and for convenience and bulk goods. Convenience and bulk goods are usually purchased as near the home as possible; consumers will travel farthest to obtain fashion goods. Medical care is a service good, and it is with the area in which this service is purchased that we are concerned. The question arises as to the possible necessity of differentiating between the area from which a physician draws patients to his office and the area which he services in making his home calls; furthermore, the area served by specialists differs from the area served by the general practitioner, and these differences are worthy of future study. In this preliminary study of the medical service area it will be sufficient to refer to a medical service area as including both office and home calls and to average out the differences roughly between "specialist" and "general practitioner" areas.

Market analysts, in discussions of retail trading areas and in attempts to mark them off on a map, usually distinguish between primary and secondary trading centers. A trading area will normally include one primary trading center and a number of secondary trading centers. For our purposes I will say that there will be a number of secondary centers in our medical service area and that these secondary trading centers will be smaller towns having 1 or more physicians. The primary trading center draws a considerable amount of trade from the surrounding territory and loses relatively little trade of its own large city residents to the smaller secondary trading-center towns.

It must be remembered that there are no absolutes in marketing areas. The secondary center loses a large portion of its trade to the primary center but does retain some of the trade. For certain types of goods, food, small service and convenience goods, it retains a considerable amount of the trade. The primary center, while drawing from a large area, does lose a small amount of the trade of its residents to the secondary centers. Marketing areas can never be absolutely defined. Medical service areas, following the same principles, cannot be absolutely defined. One town may draw from an extremely large area—an area which it is impossible to define on a map. A medical service map of Rochester, Minn., home of the Mayo Clinic, might conceivably include New Zealand. Such a center as Rochester might be called a "prime-primary center," but it is customary to use only the terms primary and secondary trading centers. Some primary centers have, of course, far more drawing power than others. Medical service areas around great medical centers such as Rochester may receive special treatment after all the other areas have been established; they will be featured in later studies of "specialist vs. general practitioner" areas. Medical service areas drawn on state highway maps will define the geographic area in which the majority of medical services of all types is obtainable. Some of these areas will be better defined than others; yet even the most hastily and carelessly circumscribed areas will, I believe, provide a closer approximation of the realities of medical service than county areas.

The Bureau of Medical Economic Research has undertaken the task of setting up medical service areas for the United States. As a preliminary step, maps have been sent to all the county medical societies through the state secretaries, and the county secretaries have been asked to mark off on the map of their state the area which the physicians in their primary medical service center, if any, service. If the county has no such primary medical service center within its borders, then the county will be included in one or more medical service areas whose primary center or centers lie outside that county. Not every county will have a primary medical service center, just as not every county will have a primary trading center. The response of the state and county secretaries to this first project has been excellent, and the areas which show up on the state maps have slight relation to the county boundary lines. From the first studies it is estimated that medical service areas will total approximately one half of the number of counties within a state.[1]

The results so far received show much overlapping; secretaries in the nearby larger counties separated by a rural county may both claim more than one half of this rural county, thereby including portions of this rural county in both medical service areas. This overlapping is usual and customary in the early stages of market research studies. The state secretary should feel encouraged by this overlapping, because it shows that the county secretaries are trying to do a good job. One of the tasks of the state secretary will be to get the county secretaries involved to allocate the disputed territory so that the overlapping will be eliminated finally. Mutually exclusive areas are to be expected after consultation with the various county secretaries and after consideration of the trading habits and customs of the people in that particular area of the state.

1. P. D. Converse has made a study of retail trading areas in Illinois and has defined less than forty such areas. There are 103 counties in Illinois. Reilly's Law of Retail Gravitation was the method used to mark off the areas. Retail Trade Areas in Illinois, University of Illinois, Urbana, 1946, p. 16.

At the state level there will be overlapping because people who are near the border of the state may look to the large city just across the state border for a considerable portion of their medical service. The elimination of these overlapping interstate areas will require conferences between the state secretaries concerned. These overlapping areas should be eliminated, therefore, as the last step in the process of developing mutually exclusive medical service areas.

When the medical service areas comprising every square mile of the United States have been completed, every medical service area will in normal times have one or more physicians, and no medical service area will be without the services of a physician. Further study may be required to determine the number and percentage of families in an area which are more than 30 miles or thirty minutes from a physician.

The problem of eliminating overlapping areas in some instances may require some formal statistical procedures. The allocation of a disputed area could be solved scientifically by asking all (or a good sample of) the doctors (specialists and general practitioners) within a reasonable distance from the disputed area to record for the first week in each of twelve successive months the home town of each and every patient (home, office or hospital) seen during the week. These records, when sorted by towns in the disputed area, would clearly reveal whether more patients from the disputed area used the medical service of town A or town B more frequently. In fact, this technic would be the best method to use in setting up the medical service areas in the first place, but the Bureau of Medical Economic Research recognizes that such a requirement would be extremely formidable and should be used only as a last resort.

The vital question of the supply of medical care and the distribution of physicians may be answered in the development of this new concept of medical service areas. Its primary significance will be that it will show far more accurately than previously used methods the areas in which physicians practice and the extent to which medical services are available to the people of the United States.

A complete medical service map of the United States will be only the first major step in the Bureau study of the supply of medical service.[2] It is the first step because it answers only the geographic questions of supply. The population per physician in a medical service area treats all doctors as equal units of supply; it is a quantitative and not a qualitative index of supply. The second step in the study of the supply of medical service will be functional and qualitative. It will not treat all doctors as being equal on the supply side of medical economics; it may require several years to complete.

Washington Letter

(From a Special Correspondent)

April 2, 1947.

A. M. A. Position on Health, Education and Security Department Stated

Spokesmen for the American Medical Association testified before the Senate Committee on Executive Department Expenditures that the A. M. A. "is opposed to having health activities grouped with other activities in a department with cabinet status." Dr. R. L. Sensenich of South Bend, Ind., chairman, and Dr. James R. Miller of Hartford, Conn., member of the A. M. A. Board of Trustees, testified at hearings on two bills for establishment of a Department of Health, Education and Security activities. They declared that they are in favor of the bill sponsored by Senator Taft, Republican of Ohio, to create a National Health Agency composed of the U. S. Public Health Service and several other federal health units, most of which are now under the Federal Security Agency. Mr. Taft said that if his bill for a new federal department was passed he would withdraw the conflicting National Health Agency measure. Other medical witnesses spoke in support of a bill to set up a Department of Health, Education and Security with a secretary, an undersecretary, and two assistant secretaries.

General Eisenhower Says Lack of Doctors Is Army's Chief Problem

General Eisenhower, Army Chief of Staff, said that the War Department's "worst problem" is the national shortage of doctors and the reluctance of medical practitioners to join the regular army. He informed the Senate Armed Services Committee that there is a proposal before the Budget Bureau to improve the Army Medical Service by hiring civilian consultants and raising the pay of physicians. Also considered is a plan to combine Army and Veterans Administration hospital services. General Eisenhower said that the Army must be ready to look after medical needs of an atomic war. He declared that in global warfare all medical services should be under the control of one man. The question was brought up during hearings on the Army-Navy Unification Bill when Chairman Gurney, Republican of South Dakota, suggested that a medical man serve on the Joint Chiefs of Staff to assure "adequate consideration" of the problem. General Eisenhower agreed with Senator Russell, Democrat of Georgia, that the problem goes beyond the Army and the Navy because there are not enough facilities in American medical schools to serve the nation's needs. General Eisenhower said that General Omar Bradley, Veterans Administration chief, told him that only one in ten former service men taking premedical courses can be accommodated in American medical colleges.

Dr. Thomas Parran Delivers Annual Kober Lecture

In recognition of his outstanding contribution to medical research, Dr. Thomas Parran, Surgeon-General, U. S. Public Health Service, delivered the 1947 Kober Lecture at Georgetown University. Dr. Parran spoke on "Research and Total Health." Under terms of the Kober Foundation an outstanding physician is selected each year to lecture on March 28, birthday of the late Dr. George Martin Kober, former dean of Medicine of Georgetown University. Dr. Eugene F. DuBois, professor of physiology at Cornell University Medical College, was selected by the Association of American Physicians as Kober medalist for 1947.

Capital Is Host to Nurses from Thirty-One Countries

Nurses from thirty-one countries will be guests in Washington, D. C., during the week of May 4 when the Congress of the International Council of Nurses meets here for committee meetings, inspection of medical facilities and sightseeing. The group will spend the following week at Atlantic City, N. J. The American Nurses Association, through the State Department, invited thirty-five nations to send delegates, and acceptances have been received from all but four, Bulgaria, Yugoslavia, Germany and Japan. The Soviet Union is not a member.

New Medical Clinic Founded in Washington

Dr. Wallace M. Yater, formerly with the Mayo Clinic, announced establishment here of a clinic patterned after that of the Mayo Brothers and offering diagnostic and treatment service in many phases of medical and surgical practice. Dr. Yater said that two members of his staff, Drs. Robert J. Coffey, surgeon, and Katherine Knop, child specialist, were formerly with the Mayo Clinic. It is planned to have a staff of sixteen by July, with fellowships for three young physicians.

Doctors Urged to Use "Plain English"

Clark D. Bridges, director of conservation service, Zurich Insurance Company of Chicago, told a clinic of Rehabilitation Agencies of thirteen states that "use of plain English" instead of highly technical terms in medical diagnoses would benefit not only the physically handicapped but society. He said that most job placements are made by laymen who know nothing of medical terms. If the language used could be understood, there would be a great reduction in the number of unsuccessful placements.

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2. An economist is always interested in both demand and supply. On the demand side, an interesting approach is described in a preliminary report of a study being made to determine the need for medical care among Michigan farm families. A sample was studied in order to judge the reliability of medical need schedules used by interviewers of selected families; the members of these families interviewed were subsequently examined by physicians in order to check the validity of the medical needs reported to the interviewers. The study is "The Determination of Unmet Need for Medical Attention Among Michigan Farm Families," by Charles R. Hoffer and Edgar A. Schuler of Michigan State College in cooperation with Dr. Rosalie Neligh and Dr. Thomas Robinson, University of Michigan Medical School.

Official Notes

RESIGNATION OF DR. OLIN WEST

The Board of Trustees of the American Medical Association regrets to announce the resignation of Dr. Olin West from the position of President-Elect. Under the Constitution and By-Laws the Board of Trustees has notified Dr. Edward L. Bortz, Vice President, that he succeeds to the office and becomes President-Elect. Following is the letter of resignation received from Dr. West:

Dr. R. L. Sensenich
Chairman, Board of Trustees
American Medical Association

My dear Doctor Sensenich:

Because of continued and possibly permanent impairment of health, I feel compelled to submit to the Board of Trustees, through you as its Chairman, my resignation as President-Elect of the American Medical Association, to take effect immediately.

I take this step with the greatest possible regret, because of having been signally honored by the action of the House of Delegates in electing me to this high office, as well as because of my devotion to the Association and to its ideals. It has been my most earnest desire and my strongest intention to do all that I could do to promote the great cause that the Association has served so well for nearly one hundred years. I sincerely hope that even as an humble member in the ranks I can make some small contribution toward the success of the very worthy aims of our great society.

I am now firmly convinced that I cannot properly perform the duties of the President-Elect and, later, those imposed on the President and that, in all fairness to the Association, my resignation should be submitted and officially accepted.

It now seems probable that I shall not be able to attend the Centennial Session to be held in Atlantic City, in which case I hope you, as Chairman of the Board of Trustees, will present my apologies for my failure in office. I hope that the House of Delegates will believe that "the spirit was willing but the flesh was weak."

I have an abiding faith in the A. M. A. and in the sincerity, integrity and soundness of judgment of those who have served and now are serving as members of its official bodies. May the richest of blessings come to all of them!

Very truly yours,
OLIN WEST.

Coming Medical Meetings

Alabama, Medical Association of the State of, Birmingham, April 14-16. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association for Thoracic Surgery, St. Louis, May 28-30. Dr. Richard H. Meade Jr., 55 E. Washington St., Chicago 2, Secretary.

American Association of Industrial Physicians and Surgeons, Buffalo, N. Y., Statler Hotel, April 26-May 4. Dr. Frederick W. Slobe, 28 E. Jackson Blvd., Chicago 4, Secretary.

American Association of Pathologists and Bacteriologists, Chicago, May 16-17. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland 6, Secretary.

American Association of the History of Medicine, Cleveland, May 25-26. Dr. Howard Dittrick, 2020 E. 93d St., Cleveland 6, Secretary.

American Association on Mental Deficiency, St. Paul, Minn., May 28-31. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American College of Physicians, Chicago, April 28-May 2. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Secretary.

American Laryngological Association, St. Louis, April 23-24. Dr. Arthur W. Proetz, 12 Westmoreland Place, St. Louis 8, Secretary.

American Laryngological, Rhinological and Otological Society, St. Louis, April 25-26. Dr. C. Stewart Nash, 288 Alexander St., Rochester 7, N. Y., Secretary.

American Otological Society, St. Louis, April 21-22. Dr. Gordon D. Hoople, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

American Pediatric Society, Stockbridge, Mass., May 13-15. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Physiological Society, Chicago, May 18-22. Dr. Maurice Visscher, University of Minnesota, Minneapolis, Secretary.

American Psychiatric Association, New York, Hotel Pennsylvania, May 19-23. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit, Secretary.

American Society for Clinical Investigation, Atlantic City, Chalfonte-Haddon Hall, May 5. Dr. Eugene A. Stead Jr., Grady Hospital, Atlanta 3, Georgia, Secretary.

American Society for Experimental Pathology, Chicago, May 19-23. Dr. Frieda S. Robschlit-Robbins, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Chicago, May 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Va., Secretary.

American Society for Research in Psychosomatic Problems, Atlantic City, May 3-4. Dr. Edwin G. Zabriskie, 714 Madison Ave., New York 21, Secretary.

American Society of Biological Chemists, Chicago, May 18-22. Dr. Otto A. Bessey, Public Health Research Institute, New York 9, Secretary.

Arizona State Medical Association, Tucson, May 7-10. Dr. Frank J. Milloy, 112 N. Central Ave., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 17-19. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, May 6-7. Dr. Joseph T. Wearn, Lakeside Hospital, Cleveland 6, Secretary.

California Medical Association, Los Angeles, Hotel Biltmore, April 30-May 3. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Connecticut State Medical Society, New Haven, April 28-30. Dr. Creighton Barker, 258 Church St., New Haven 10, Secretary.

Federation of American Societies for Experimental Biology, Chicago, May 18-22. Dr. William H. Chambers, 1300 York Ave., New York 21, Secretary.

Florida Medical Association, Miami, April 20-23. Dr. Robert B. McIver, P. O. Box 1018, Jacksonville, Secretary.

Georgia, Medical Association of, Augusta, Bon Air Hotel, April 22-25. Dr. Edgar D. Shanks, 478 Peachtree St. N. E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Lihue, Kauai, May 1-4. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu 53, Secretary.

Illinois State Medical Society, Chicago, Palmer House, May 12-14. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, April 16-18. Dr. John C. Parsons, 406 Sixth Ave., Des Moines 9, Secretary.

Kansas Medical Society, Topeka, May 12-15. Dr. John M. Porter, 512 New England Bldg., Topeka, Secretary.

Louisiana-Mississippi Ophthalmological and Otolaryngological Society, Biloxi, Miss., Buena Vista Hotel, May 5. Dr. Edley H. Jones, 1301 Washington St., Vicksburg, Miss., Secretary.

Louisiana State Medical Society, New Orleans, May 12-14. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 22-23. Dr. W. Houston Toulson, 1211 Cathedral St., Baltimore 29, Secretary.

Massachusetts Medical Society, Boston, Hotel Statler, May 20-22. Dr. Michael A. Tighe, 8 Fenway, Boston 15, Secretary.

Medical Library Association, Cleveland, Wade Park Manor, May 27-29. Miss Heath Babcock, New York State Medical Library, Albany 1, New York, Secretary.

Mississippi State Medical Association, Biloxi, May 6-8. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.

Nebraska State Medical Association, Omaha, April 28-May 1. Dr. R. B. Adams, 416 Federal Securities Bldg., Lincoln 8, Secretary.

New England Diabetes Association, Boston, City Hospital, April 16. Dr. James H. Townsend, 330 Mt. Auburn St., Cambridge, Mass., Secretary.

New Jersey, Medical Society of, Atlantic City, Haddon Hall, April 22-24. Dr. Alfred Stahl, 160 Lincoln Ave., Newark 4, Secretary.

New Mexico Medical Society, Albuquerque, April 30-May 3. Dr. H. L. January, 221 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Buffalo, May 5-9. Dr. Walter P. Anderton, 292 Madison Avenue, New York 19, Secretary.

North Carolina, Medical Society of the State of, Virginia Beach, Va., Cavalier Hotel, May 12-14. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Fargo, May 25-27. Dr. L. W. Larson, 221 Fifth St., Bismarck, Secretary.

Northern Tri-State Medical Association, Detroit, April 8. Dr. John L. Stifel, 232 Michigan St., Toledo 2, Ohio, Secretary.

Ohio State Medical Association, Cleveland, May 6-8. Mr. Charles S. Nelson, 79 E. State St., Columbus 15, Executive Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 14-16. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Executive Secretary.

Rhode Island Medical Society, Providence, May 14-15. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society of American Bacteriologists, Philadelphia, May 13-16. Dr. Leland W. Parr, 1335 H St. N. W., Washington 5, D. C., Secretary.

Tennessee State Medical Association, Memphis, April 8-10. Dr. W. M. Hardy, 706 Church St., Nashville 3, Secretary.

Texas, State Medical Association of, Dallas, Adolphus Hotel, May 5-8. Dr. Holman Taylor, 1404 W. El Paso St., Fort Worth 3, Secretary.

United States-Mexico Border Public Health Association, San Diego, California, and Tijuana, Mexico, May 6-8. Dr. James A. Grider Jr., 151 U. S. Court House, El Paso, Texas, Secretary.

West Virginia Medical Association, Charleston, May 12-14. Mr. Charles Lively, 1031 Quarrier St., Charleston 24, Secretary.

Medical Legislation

STATE LEGISLATION

Arizona

Bill Passed.—H. 163, which passed the house March 13, proposes to require each applicant for **a marriage license** to present a certificate signed by a duly licensed physician stating that the applicant is free from syphilis and other venereal diseases, tuberculosis and any other chronic or malignant infectious disease.

Colorado

Bills Introduced.—H. 262 proposes the enactment of **an occupational tax on certain professions** but specifically exempts from the operation of such tax the services of chiropractors, osteopaths, physicians, surgeons, dentists, embalmers, nurses, optometrists, undertakers, chiropodists, hospitals, cemeteries or state licensed veterinarians. S. 361 proposes to authorize the state board of medical examiners to grant licenses to practice naturopathy defined as "the art and science of applied healing forces by the use of Physiotherapy, Hydrotherapy, Mechanotherapy, Manipulative therapy, Electrotherapy, Phytotherapy, use of Nutritions, Diets, Hygiene and Sanitary Measures and minor surgery as taught in Naturopathic Colleges. Provided, however, that the use of Narcotics, poisonous herbs, poisonous drugs, serums and vaccines shall not be construed as Naturopathy as heretofore defined."

Idaho

Bill Enacted.—S. 102, which has become chapter 220 of the Laws of 1947, is a state **hospital survey and construction act** requiring a statewide survey of hospital facilities and the preparation of a program for the construction of additional needed facilities. The act requires the appointment of an advisory hospital council and authorizes the commissioner of the state department of public health to apply for and accept federal funds to assist the state in survey and construction activities.

Illinois

Bill Introduced.—H. 283 proposes a law for the licensing and **regulation of public and private hospitals** and sanatoriums, maternity hospitals, lying-in homes, rest homes, nursing homes, boarding homes and other institutions and places providing hospitalization or inpatient or nursing care.

Indiana

Bills Enacted.—H. 450, which has become chapter 172 of the Laws of 1947, provides for the licensing, inspection and regulation of **nursing homes.** S. 50, which has become chapter 235 of the Laws of 1947, creates an **Indiana Council for Mental Health** to, among other things, prescribe by rule or regulation classification of state psychiatric personnel and to prescribe the minimum qualifications for employment in each classification.

Kansas

Bill Introduced.—H. 399 proposes the enactment of a **hospital survey and construction act** requiring a survey of existing hospital facilities and the preparation of a program for the construction of additional needed facilities. The proposal also provides for the appointment of an advisory hospital council and authorizes the application for and receipt of federal funds to assist in the survey and construction activities within the state.

Maine

Bill Introduced.—S. 449 proposes to authorize the governor to appoint **an advisory hospital council** to advise and consult with the department of health and welfare in carrying out the administration of the existing hospital survey act.

Maryland

Bills Introduced.—H. 663, to amend the hospital law, proposes to designate **the state board of health** as the sole agency to represent the state of Maryland in obtaining benefits under the federal hospital survey and construction act and proposes also to authorize the governor to appoint an advisory council on hospital construction. S. 358, to amend the medical practice act, proposes to exempt therefrom **Christian science practitioners** duly registered in the *Christian Science Journal* of the Christian Science Publishing Society, Boston.

New Jersey

Bill Introduced.—S. 208 proposes to authorize the state department of health to purchase and distribute free, in accordance with rules of said department, **antibiotics** for use in preventing or treating communicable diseases.

New Mexico

Bill Passed.—H. 45, which passed the house March 13, proposes to require all applicants for **a marriage license** to present a certificate from a physician and surgeon duly licensed to practice medicine and surgery in the state of New Mexico showing that such applicant is not, in the opinion of the physician, infected with syphilis in such a stage that it may become communicable to the marriage partner.

Bills Enacted.—S. 12, which was approved March 21, is a state **hospital survey and construction act** requiring a survey of existing hospitals and the preparation of a program for the construction of additional facilities. The act requires compliance with the requirements of the federal hospital survey and construction act and regulations thereunder. S. 80, which was approved March 18, to amend the law relating to **osteopathic physicians,** provides that if the presence of an osteopathic physician on the staff of any tax supported hospital will under federal law or regulation prevent such hospital from receiving any federal funds the governing authority of such hospital will have the power to remove all osteopathic physicians from the staff of such hospital. S. 138, which was approved March 20, is an enabling act for the formation and regulation of **physicians' service plans.** S. 246, which was approved March 18, to amend **the workmen's compensation act,** authorizes an employer or insurer to be entitled to have a physical examination of any claimant by a physician of his own choice, subject to the furnishing of reports, subject to the requirement that the physician be qualified to practice medicine under the laws of this state or the state wherein the claimant resides and subject to certain other requirements. S. 247, which was approved March 19, to amend the law relating to the **director of public health,** provides that such director shall be a person having a degree of Doctor of Medicine, licensed or eligible for licensure in the state of New Mexico, and fixes the director's salary at not to exceed $6,000 per year.

New York

Bill Enacted.—S. 167, which was approved March 8, amends the law relating to the **practice of midwifery** by requiring as a condition to annual renewal of a license evidence that the applicant has attended and conducted one or more deliveries during the twelve months last past.

North Carolina

Bills Introduced.—H. R. 703 proposes the appointment of a commission for the special purpose of studying and investigating the administration of the **various examining boards** in the state. H. 630 proposes the creation and establishment of a two year medical school at the North Carolina College at Durham.

North Dakota

Bills Enacted.—H. 23, which was approved March 14, 1947, provides for the licensing of **maternity homes** for unmarried mothers and requires that every birth occurring in such a home shall be attended by a legally qualified physician, if available, otherwise by a registered nurse until the services of a legally qualified physician can be obtained. H. 33, which was approved March 15, requires **drivers of school busses** to be examined annually by a reputable physician and to present to the school board a certificate of physical fitness showing good physical and mental health, able bodied and freedom from communicable diseases, as well as normal use of both hands, both feet, both ears and both eyes. H. 127, which was approved March 15, provides for licensing of **chiropractic hospitals** by the state board of chiropractic examiners.

Ohio

Bill Introduced.—H. 295 proposes to authorize the use in court of evidence of the amount of **alcohol in a person's blood** taken within two hours of the time after he is arrested as shown by a chemical analysis of his blood, urine, breath or saliva. This proposal would apply to the trial of any action or proceeding arising out of acts alleged to have been committed by any person arrested for operating a motor vehicle or motorcycle while in an intoxicated condition.

Oklahoma

Bill Introduced.—H. 278 proposes to make it a misdemeanor for any person **to use the word "Doctor"** or to hold himself out as qualified to engage in the practice of any of the healing arts without holding an unrevoked license or certificate issued by the laws of the state authorizing the person to practice the healing art covered by the license.

Bills Enacted.—H. 51, which was approved March 17, amends **the chiropractic act** by requiring, as a condition for annual renewal of a license, that the applicant present satisfactory evidence that he has attended a two day educational postgraduate program during the prior year or that he was unavoidably prevented by sickness or otherwise from attending such program. H. 159, which was approved March 13, requires various practitioners of the healing art to **list descriptive letters** after their names in order to designate the branch of practice in which they engage.

Oregon

Bills Enacted.—H. 7, which was approved March 12, requires all physicians licensed by the state board of medical examiners to report immediately to the local health officer the name, sex, date of birth and address of every person diagnosed as a case of **epilepsy or similar disorder** characterized by momentary or prolonged lapses of consciousness or control which is or may become chronic. H. 182, which was approved March 12, to amend the chiropractic law, increases from $5 to $10 the annual **registration fee of chiropractors** and requires that at the time of applying for such annual registration the applicant must show that he has attended a three day educational program provided annually by the Oregon Association of Chiropractic Physicians. S. 189, which was approved March 10, increases the **annual registration fee** of physicians from $5 to $10

Washington

Bills Enacted.—H. 297, which was approved March 19, 1947, requires a survey for the discovery, treatment, hospitalization, education and training of persons afflicted with **cerebral palsy** and the appointment of a committee to make such survey. H. 378, which has become chapter 168 of the Laws of 1947, requires **applicants for a license** to practice medicine and surgery to have graduated from a medical school accredited and approved by the Association of American Medical Colleges and the Council of Medical Education and Hospitals of the American Medical Association.

GOVERNMENT SERVICES

ARMY

THE AIR SURGEON PROMOTED

Malcolm C. Grow, the Air Surgeon, U. S. Army, was recently promoted to major general. General Grow graduated from Jefferson Medical College, Philadelphia, in 1909 and served with the U. S. Army in France in World War I and with the Army of Occupation in Germany. He attended the Army School of Aviation Medicine in 1928 and later was assigned to Wright Field for experimental work on winter flight clothing. He was appointed chief, Medical Division, Office of the Chief of the Air Corps, in 1935 and later surgeon, Third Air Force; Surgeon, 8th Air Force; Surgeon, U. S. Strategic Air Forces in Europe; Surgeon, Strategic and Tactical Air Forces, Guam; acting Air Surgeon, and in January 1946 became the Air Surgeon. General Grow received the John Jeffries Award of the Institute of the Aeronautical Sciences in January 1947 for outstanding contributions to the advancement of aeronautics through medical research.

LIBRARY CONSULTANTS INCORPORATE

The Association of Honorary Consultants to the Army Medical Library has been incorporated under the laws of the District of Columbia and will continue as an advisory body to the Surgeon General in matters pertaining to the library. The association is an outgrowth of an advisory board of prominent physicians and librarians appointed in 1931. The Surgeon General in 1943 appointed additional consultants, and the number has grown until there are now more than eighty-five members. The association is financed by the Rockefeller Foundation under the auspices of the American Library Association.

CONFERENCE OF LABORATORY SPECIALISTS

Field medical laboratory service was the subject of a recent conference at the Surgeon General's Office, of specialists, all of whom had been on active duty during the recent war. The meeting was called to discuss present laboratory organization in the light of recent war experience with a view toward improving its form and equipment. The chairman of the conference was Dr. Ralph Muckenfuss, New York, who commanded the First General Laboratory in Europe. In addition to the civilian specialists, medical department officers were ordered from near and distant points to attend the conference. Among the Speakers were the present chief, Laboratories Branch, Surgeon General's Office, Lieut. Col. Robert L. Cavenaugh, M. C., who surveyed the laboratory service in World War II; Col. Henry C. Dooling, M. C., chief, Medical Consultant's Division, Surgeon General's Office, discussed hospital laboratory functions, stressing clinicolaboratory cooperation; Lieut. Col. Carl T. Dubuy, M. C., chief, Troop Units Division, discussed proposed changes in various medical units and tables of organization.

CELEBRATED CHINESE PUBLICATION

The Army Medical Library has acquired a copy of the Chinese Golden Mirror of Medicine (Yu Tsuan I Tsing Chin Chien), the original of which was published in 1749. The set contains an introductory volume and ninety volumes of text, with numerous woodcut illustrations. It was written in two sections by a staff of eighty persons in compliance with an imperial order, the first on internal medicine consisting of seventy-four volumes, the second on general surgery consisting of sixteen volumes. The first twenty-five volumes contain corrections of the ancient classics of Chang Chung-Ching, the "sage" of medicine, whose Essay on Typhoid was published in 216 A. D. The other volumes cover general diseases, women's diseases, children's diseases, smallpox, surgery, diseases of the eyes, method of acupuncture, bone setting and orthopedics. Special chapters consider parasitology, leprosy and inoculation, which is known to have been practiced in China since the Sung dynasty, during the reign of Emperor Teu Tsung, 1023-1063 A. D.

CONFERENCE OF ARMY CHIEF NURSES

A four day conference of chief nurses of army general hospitals in various parts of the country was held in the Office of the Surgeon General, March 18-21, to discuss problems of the postwar organization and nursing service. Major Gen. Norman T. Kirk, the Surgeon General of the Army, gave the welcoming address. Col. F. A. Blanchfield, chief, Nursing Consultants Division, stated the aims of the conference. Among the subjects discussed were the army hospitalization program, personnel in army hospitals, personnel analysis and resources, board proceedings in connection with disposition, retirement and physical standards of army nurses, the hospital supply program, the reserve program, standardization of nursing procedures, dietetic problems, physical therapy problems and efficiency ratings. A reception and dinner was held at the Officers' Club, Fort Myer, March 19, in honor of Colonel Blanchfield, whose tour of duty expires May 31.

FLIGHT NURSES

Eleven officers of the Army Nurse Corps graduated from the Army School of Aviation Medicine, Randolph Field, Texas, on March 7, as "flight nurses" after an intensive nine weeks' training course.

The first five weeks are devoted to basic military medical and surgical subjects. Nursing care and management of wounded during flight are given special consideration. Actual air evacuation flights in the continental United States provide the final four weeks of on the job training. On the completion of the course, the graduate is authorized to wear the distinctive wings of the Army Air Force flight nurse.

Col. Harry G. Armstrong, Medical Corps, commandant of the school, presented the diplomas.

ARMY AWARDS AND COMMENDATIONS

Brigadier General Larry B. McAfee

The Legion of Merit has been awarded to Brig. Gen. Larry B. McAfee, M. C., U. S. Army (Retired), now of Denver, who was cited for his service from July 1943 to October 1945 as commanding general of Bruns General Hospital, Santa Fe, N. M. He was instrumental in accomplishing a notable expansion of the hospital, and through his exceptional knowledge of army medical methods he incorporated many improvements in its greatly increased functions. Through his professional ability and sound judgment, General McAfee effected the development of the hospital into one of the Army's finest tuberculosis institutions. Dr. McAfee graduated from George Washington University, Washington, D. C., in 1906 and entered the military service in 1908.

Colonel George E. Leone

The Legion of Merit has been awarded to Col. George E. Leone, M. C., U. S. Army, for performing exceptionally meritorious service as chief surgeon and chief air surgeon, Headquarters, United States Army Forces, South Atlantic, from July 1942 to September 1945. In discharging his responsibility for the health of troops within the area of his jurisdiction he early established a program of preventive medicine as a result of

which the health of the command and of many transient personnel was maintained at a high level. He also maintained close liaison with the Brazilian army medical service and Brazilian public health officials, thereby contributing greatly to smooth relations with that country. The inauguration of a program of air evacuation of the sick and injured of the Brazilian army was greatly furthered by his persistent efforts. By his tact, professional ability and unremitting attention to duty Colonel Leone assured the smooth operation of the medical program throughout the South Atlantic area. Dr. Leone graduated from the University of Buffalo School of Medicine in 1929 and entered the military service July 1, 1929.

Colonel Tom F. Whayne

The America Typhus Commission Medal has been awarded to Col. Tom F. Whayne, M. C., U. S. Army, for rendering exceptionally meritorious service in connection with the work of the United States of America Typhus Commission during several important periods from Aug. 1, 1942 to March 8, 1946. In 1942 he assisted in the formulation of plans for the establishment of the commission. In 1943, as assistant military attaché at the American embassy in London he helped to develop the mutually beneficial American and British collaboration in worldwide typhus control. During 1944, and until he relinquished his post as chief of preventive medicine service of the United States Theater Service Forces in the European theater, he cooperated with the commission in planning and operating typhus control measures for troops and for the refugees and displaced persons coming under American jurisdiction in Europe. Professionally, administratively and as a distinguished liaison officer, Colonel Whayne aided the advancement and application of modern typhus control, contributing to the safeguarding of the health of troops and of populations. Dr. Whayne graduated from Washington University School of Medicine in 1931 and entered military service Dec. 5, 1934.

Colonel Louis F. Verdel

The Legion of Merit has been awarded to Col. Louis F. Verdel, M. C., A. U. S., of Northport, Long Island, and formerly of Roanoke, Va. The citation stated that he performed exceptionally meritorious service as manager of the Veterans Administration Hospital at Northport, Long Island, from June 1944 to February 1946. By outstanding leadership, ingenuity, professional skill, tact and complete disregard for his own health under difficulties due primarily to lack of equipment and trained personnel, Colonel Verdel administered this 2,000 patient neuropsychiatric hospital in such a manner as to render the highest standard of treatment and maintain a high state of morale among the patients, winning the confidence, praise and cooperation of relatives, local institutions and the medical profession. Dr. Verdel graduated from the National University of Arts and Science, St. Louis, in 1915 and entered the military service Feb. 12, 1944.

Colonel Hugh L. Prather

The Legion of Merit has been awarded to Col. Hugh L. Prather, M. C., U. S. Army, of Memphis, Tenn., who rendered exceptionally meritorious service as executive officer, Kennedy General Hospital, and later as commanding officer, Army General Hospital, Camp Butner, North Carolina, during the period August 1942 to March 1946. His attention to details of administration and patient care, says the citation, combined with the improvements he fostered in occupational therapy and recreational projects, promoted high morale and resulted in the highly successful operation of these medical installations. Colonel Prather's work was a material factor in the smooth and efficient service rendered by these hospitals. Dr. Prather graduated from Vanderbilt University School of Medicine in 1928 and entered military service the same year.

Lieutenant Colonel William H. Pennington

The Legion of Merit has been awarded to Lieut. Col. William H. Pennington, M. C., A. U. S., of Lexington, Ky., for exceptionally meritorious conduct in the performance of outstanding services in the Mediterranean Theater of Operations from Nov. 8, 1942 to May 8, 1945. The citation makes it apparent that as assistant chief of surgical service, executive officer and finally commanding officer of the 38th Evacuation Hospital, Lieutenant Colonel Pennington rendered thirty months of service to the sick and wounded of the Mediterranean theater on a level of superiority difficult to equal. During the Algerian, Tunisian and Sicilian campaigns, when hospitalization facilities were extremely limited, he was instrumental in the saving of countless lives. From the beaches of Paestum, across the Volturno, at Anzio, north of Rome, and at the Gothic Line he served as executive officer of the 38th Evacuation Hospital. In this position he assisted in the supervision of the professional and administrative services of this unit, and largely through his untiring and cheerful diligence combined with great technical skill, its record was one of exceptional medical achievement. As commanding officer during the final and victorious Fifth Army April offensive the spirit of cooperation which he drew from the personnel under his leadership enabled the 38th Evacuation Hospital to move three times and each time tear down, move, set up and receive patients all in one day's time. His performance was consistently exemplary and brought the highest credit both to himself and to the Medical Corps of the Army of the United States. Dr. Pennington graduated from the University of Louisville School of Medicine in 1928 and entered the military service April 15, 1942.

Lieutenant Colonel David M. Greeley

The United States of America Typhus Commission Medal has been awarded to Lieut. Col. David M. Greeley, M. C., A. U. S., of New York, who rendered exceptionally meritorious service as executive officer, Field Headquarters, United States, of America Typhus Commission, in England, France and Germany from October 1944 to March 1946. The citation explains that he was skilled and experienced in the professional and administrative aspects of investigating and controlling epidemic typhus and served with distinction not only the commission but also the chief military and civilian agencies concerned with typhus control. Colonel Greeley's activities on an international scale greatly strengthened typhus control throughout western Europe. Dr. Greeley graduated from Harvard Medical School in 1937 and entered military service Aug. 31, 1942.

Lieutenant Colonel Charles L. von Pohle

The Legion of Merit has been awarded to Lieut. Col. Charles L. von Pohle, M. C., A. U. S., of Chandler, Ariz., for performing meritorious services for the Division of Health and Sanitation, the Institute of Inter-American Affairs, from December 1942 to April 1946 as medical officer and associate chief of a field party in Bolivia, South America, and as chief of field party in the republic of Colombia, South America. Colonel von Pohle was credited in the citation for contributing to the war effort through his effective direction of the cooperative health and sanitation programs in Bolivia and Colombia, which programs aided the military operations in the production of strategic material and in the prevention of the development of conditions that would have impaired the war effort of the United States. His enthusiasm, vision and good judgment were responsible for the successful programs conducted. Dr. von Pohle graduated from the College of Medical Evangelists, Los Angeles, in 1932 and entered the military service in November 1942.

Lieutenant Colonel Arnold Eisendorfer

The Army Commendation Ribbon was recently awarded to Lieut. Col. Arnold Eisendorfer, M. C., A. U. S., of New York. The citation called attention to his "meritorious service and devotion to duty as neuropsychiatrist and chief neuropsychiatrist, headquarters, ASFTC, Fort Lewis, Washington, from July 1, 1944 to Jan. 11, 1946. His skilful handling, through utilization of outstanding professional ability, of large numbers of psychoneurotic soldiers resulted in the readjustment and return to duty of a high percentage of all persons processed, contributing materially to the welfare and record of the command."

Dr. Eisendorfer was also awarded the Oak Leaf Cluster with the citation "for meritorious service as chief, consultation service and chief neuropsychiatrist, Camp Abbot, Oregon, from May 15, 1943 to June 4, 1944. At a time when the consultation service

was an innovation and its development in many respects novel and untried, Major Eisendorfer, through his outstanding professional ability, leadership, ingenuity and untiring energy, organized and operated the neuropsychiatric consultation service and mental hygiene program so successfully that it became a model for other services and contributed materially to the effective utilization of manpower in the army."

Lieutenant Colonel Eisendorfer graduated from the University of Colorado School of Medicine, Denver, in 1928 and entered the service Oct. 21, 1942.

Major John W. Eschenbrenner

The Legion of Merit has been awarded to Major John W. Eschenbrenner, M. C., A. U. S., of Fort Worth, Texas, who was a member of the Air Surgeon's Board in Otorhinolaryngology. The citation stated that during the period from May 1944 to October 1945, Major Eschenbrenner performed an outstanding service in connection with the preparation of plans and studies for implementing the Army Air Forces Aero-Otitis Control Program. His personal direction of the irradiation program in the Eighth Air Force reflects great credit on himself and on the military service. Dr. Eschenbrenner graduated from Washington University Medical School, St. Louis, in 1929 and entered military service Feb. 4, 1943.

Captain Carlo Henze

The Legion of Merit has been awarded to Capt. Carlo Henze, M. C., A. U. S., of New York. He rendered exceptionally meritorious service as a medical intelligence officer engaged in the collection of information concerning German research programs of major concern to the Allied forces during the period December 1944 to April 1945. The citation mentions his imagination, skill and ingenuity, which made possible the successful completion of an investigation which brought to light the complete information regarding these German projects and their possible relationship to comparable Japanese programs. Captain Henze's accomplishments in this field were a major contribution to the medical intelligence of the Allied forces. Dr. Henze graduated from the University of Innsbruck School of Medicine, Austria, in 1933 and entered the military service Jan. 20, 1941.

Captain Amos R. Little

The Air Medal, the Legion of Merit and the Army Commendation Ribbon were recently awarded to Capt. Amos R. Little Jr., M. C., A. U. S., of Helena, Mont. The citations read in part as follows: "For meritorious achievement in aerial flight on June 15, 1944 at Crown Peak, Roosevelt National Forest, Colorado. On flying to the scene of an aircraft accident on a mountain peak at an altitude of 11,000 feet, Captain Little made a daring and exceptionally dangerous parachute jump at an altitude of only 500 feet above the peak in order to render assistance and medical care to the survivors. Despite the jagged and rocky character of the landing area, and snow and ice, he performed a highly successfully jump and was instrumental in possibly saving many lives. During the period from November 1943 to April 1946 he made a total of fifty-one parachute jumps under hazardous conditions for the purpose of rendering medical aid to the victims of accidents. His outstanding work in the field of medical research and rescue technic reflects great credit on himself and on the armed forces of the United States. Dr. Little graduated from Johns Hopkins University School of Medicine in June 1942 and entered the military service Oct. 1, 1943.

Captain Monroe J. Romansky

The Legion of Merit has been awarded to Capt. Monroe J. Romansky, M. C., A. U. S., of Washington, D. C., who rendered distinguished service in penicillin research at the Army Medical Center, Washington, D. C., from July 1942 to October 1945. The citation stated that his pertinacity in research, professional skill and devotion to duty resulted in improvements in the technics for administration of penicillin, thereby saving lives and alleviating pain and suffering. Dr. Romansky graduated from the University of Rochester School of Medicine in 1937 and entered the military service July 25, 1942.

CORRECTION

Major Harry Most.—Under Awards and Commendations in THE JOURNAL, March 22, page 874, Dr. Harry Most should have been referred to as Major instead of Captain.

VETERANS ADMINISTRATION

VETERANS ADMITTED TO HOSPITALS IN 1946

A total of 458,749 veteran-patients were admitted to Veterans Administration and non-Veterans Administration hospitals during the calendar year 1946, the Veterans Administration reports. General medical and surgical patients accounted for 83.19 per cent of the admissions, and neuropsychiatric patients for 11.77 per cent of the total. The smallest group, 4.27 per cent of the total, was the tuberculous patients. The remainder of the admissions, 3,540, were nonveteran patients including employees taken ill on the job and treated before removal to civilian hospitals, veterans of allied forces and emergency cases admitted pending removal to other hospitals. Slightly less than 50 per cent of the total number of neuropsychiatric admissions were classified as psychotic cases, the remainder being neuropsychiatric disorders other than psychosis, such as organic conditions of the nervous system, character and behavior disorders and the psychoneurotic. During the fiscal year 1946, neuropsychiatric patients discharged from hospitals had an average stay of 197 days, compared with 186 days for tuberculous patients and 34 days for general medical and surgical patients.

PARAPLEGIC CENTERS

The Veterans Administration has established seven paraplegic centers in hospitals strategically located from coast to coast. These centers, especially designed to treat veterans with spinal cord injuries, are in operation in Veterans Administration hospitals at Framingham, Mass.; Memphis, Tenn.; Van Nuys, Calif.; Staten Island, N. Y.; Richmond, Va.; Bronx, N. Y., and Hines, Chicago.

Because of a general shortage of doctors, physical therapists and others qualified to treat paraplegic patients, Veterans Administration personnel skilled in this field have been assembled at the seven centrally located hospitals. Today, because of modern medical science and developments in the field of physical medicine, many persons with paraplegia are able to lead active, productive lives. To treat each case properly, the services are needed of a medical team consisting of a neurologist, neurosurgeon, psychiatrist, urologist, plastic surgeon, orthopedic surgeon, physical therapist, occupational therapist, corrective physical rehabilitation officer, educational retraining officer, prevocational shop supervisor, social worker and nurses. The Veterans Administration has about 1,200 veteran patients suffering from injuries to the spinal cord.

PERSONAL

Dr. L. S. Eagleburger of Stevens Point, Wis., has been appointed chief medical director of the Wausau subregional office of the Veterans Administration. Dr. Eagleburger served in the Army during the recent war, and twenty-eight months of his service was in the southwest Pacific area.

Dr. O. K. Timm, recently released from the Army after more than two years of foreign duty, has been appointed clinical director of the Veterans Administration Hospital, Danville, Ill. Dr. Timm served with the Veterans Administration prior to entering the military service. In the new position he succeeds Dr. George D. Rice, who was transferred to Tomah, Wis., as manager of a new veterans' hospital.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

California

Berger, Melvin M.....Los Angeles
Brock, William.....San Francisco
Corwin, Edward H.....Los Angeles
DeLuca, Joseph.....San Diego
King, Jack W.....Los Angeles
Layton, William C.....San Mateo
Longley, James E.....San Diego
Mason, Marshall I.....San Jose
Mulder, Harold H.....Compton
Schunke, Gustave B.....Inglewood
Tirrell, Walter M.....Los Angeles
Todd, Max A.....Eureka

Colorado

Temple, Herbert V.....Haybro
Towbin, Samuel.....Denver

Connecticut

Coe, Relvert J.....New Haven
Klemperer, Wolfgang W.....New Haven
Ludwig, Edward W.....Ansonia

District of Columbia

Hynes, William P.....Washington
Lenhoff, Charles D.....Washington

Florida

Frank, Frederick W.....Miami

Georgia

Blanchard, Mercer C.....Columbus
Powell, John E. Jr.....Villa Rica

Illinois

Bond, Alan B.....Chicago
Gratkins, Leonard V.....Chicago
Ivan, Michael M.....Chicago
Jonas, William P.....Chicago
Kirby, William J.....Chicago
Kirk, Max L.....Mount Vernon
Kirkwood, Roger T.....Lawrenceville
Kissinger, Charles C.....Anna
Lams, Louis.....Elgin
Looby, William E.....Highland Park
Ludwig, Irving I.....Chicago
Qualmann, Lawrence R.....Chicago
Rayer, Kenneth N.....Kankakee
Tanny, Michael.....Bellwood
Tratt, Elliott M.....Morris
Walaver, John H. Jr.....Springfield

Indiana

Baumrucker, George O.....Indianapolis
Cline, Kenneth L.....Bremen
Fitzpatrick, James S.....Edwardsport
Ludin, Albert P.....East Chicago
Martin, Joe M.....West Lafayette
Miller, Leonard C.....Indianapolis
Sidebottom, Earl W.....Rushville
Smith, Roger C.....New Haven
Sutton, William E.....Edinburg
Swihart, John J.....Argos

Iowa

Cartwright, Forrest P....Grand Junction
Summers, Thomas B.....Ardon

Kentucky

Caldwell, Milton V.....Newport
Donnelly, Arthur D. Jr...Bowling Green
Lake, Willard.....McHenry
Traub, David S.....Louisville

Louisiana

Caldwell, Gene D.....Shreveport

Maine

Tougas, Raymond A.....Brunswick

Maryland

Houska, Henry J.....Baltimore
Louzan, John.....Silver Springs

Massachusetts

Buckley, Robert W.....Beverly
De Persio, John D.....Boston
Furie, Robert J.....Worcester
Gilmore, Ray S.....Lowell
Horne, Elwood O.....Shrewsbury
Kirkendall, Henry L.....Worcester
Levine, Reevan I.....Dorchester
Lewis, Fred W.....Groton
Manconi, Salvatore A.....Revere
Ruben, Maurice R.....Dorchester

Michigan

Alpiner, Sam.....Battle Creek
Boyle, Albert J.....Detroit
Francis, Donald J.....Pontiac
Ludwig, Claud A.....Lansing

Minnesota

Anderson, Charles L.....Duluth
Coventry, William D.....Duluth
Litman, Morris H.....Minneapolis
Louisell, James M.....St. Paul
Rewbridge, Allan G.....Minneapolis
Smith, Lloyd A.....Balaton

Mississippi

Liberto, Joseph R.....West Point

Missouri

Broyles, Watkins A.....Bethany
Kienberger, Paul A.....Butler
Londe, Sol.....Webster Groves
Smith, Robert W.....Kansas City

Nebraska

Levin, Stanley L.....Lincoln

New Jersey

Cameron, Clarence P.....Sommers Point
Charles, Seymour.....Sussex
Cooley, Justus H.....Bound Brook
Edwards, Walter R.....Trenton
Hardy, Geza R.....New Brunswick
Heller, George.....Englewood
Lakiszak, Roman T.....Jersey City
Lynch, Michael F.....Linden
Lynn, Irving I.....Jersey City
Merliss, Harry.....Newark
Trambert, Harry L.....Bayonne

New York

Carroll, Francis L.....Oswego
Chimera, Marion J.....Corning
Clancy, John B.....Albany
Comer, Bartholomew J.....Corona, L. I.
Edelman, Isidore S.....Brooklyn
Edmonds, Albert M.....Clayton
Goodman, Howard C.....Buffalo
Harris, Basil Jr.....New York
Jacobson, Seymour B.....New York
Kinder, Frederick S.....New York
Kingsley, Harry D.....Rochester
Kingsley, Sumner B.....Rome
Kirschner, Paul A.....New York
Kornblum, Stanley A.....Monticello
Krasnoff, Harry M.....Brooklyn
Kraunz, George J.....Rome
Leder, Harold L.....New York
Liebolt, Frederick L.....New York
Linder, James H.....New York
Liotta, Salvatore....Kew Gardens, Hills
Lipani, John G.....Brooklyn
Marshall, Irving A.....Brooklyn
Mason, Bernard.....Middletown
Neuman, Ellsworth T.....Poughkeepsie
Plutino, Vincent B.....Bronx
Ravich, Robert A.....Brooklyn
Richardson, Herbert A.....Amenia
Rosenbusch, Justin.....Brooklyn
Sanders, Arnold R.....New York
Solomon, Marvin N.....Bronx
Straub, Leonard R.....Jackson Heights
Tanner, Charles J. Jr.....Hornell

New York—Continued

Todd, Hobart H. Jr.....New York
Tomao, Anthony L.....Brooklyn
Tortora, John M.....Brooklyn
Trantum, Donald D.....Jamestown
Walker, Arthur H.....Rochester
Weiss, Andor A.....New York
Wheeler, William T.....Boonville

North Carolina

Nesbitt, Isaac F.....Edneyville
Thompson, Kearns R. Jr.....Reidsville

Ohio

Bailey, Robert C.....Lakewood
Campbell, Howard R.....Dayton
Campbell, Leland E.....Cleveland
Curtiss, Charles F.....Columbus
Gardiner, Alfred S.....Middletown
Hamilton, Joseph W.....Akron
Horrocks, Jack B.....South Enclid
Kleinhenz, Henry E.....Cleveland
Landen, Cornelius C.....Columbus
Lynch, John C.....Athens
Schaber, Jack F.....Cincinnati

Oklahoma

Gilbert, John B.....Oklahoma City
King, Everett G.....Duncan
Toma, Kay.....Granite

Oregon

Smith, William P.....Sherwood

Pennsylvania

Baeslack, Harold A.....Swissvale
Boyle, Joseph R.....Wanamic
Casey, Adrian V.....Scranton
Conte, Nicholas F.....Scranton
Gilligan, Frank P.....Ashley
Ginieczki, Chester J.....Philadelphia
Imber, Irving.....Reading
Kirk, Daniel L.....Waynesboro
Landay, James P.....Philadelphia
Little, George W. W.....Homestead
Marx, Halvey E.....Allentown
Mead, Lewis J. G.....Yorktown
Miller, Charles W.....Ashland
Revitch, Eugene.....Philadelphia
Rex, Richard O.....Pen Argyl
Smith, Howard B.....Philadelphia
Szakalun, Leo S.....Philadelphia
Tipping, James S.....Pittsburgh
Todhunter, William D.....Johnstown
Toll, William G.....Oaks

Tennessee

Chambers, John M. Jr.....Memphis
Lowrance, Preston B.....Chattanooga
Myers, William T.....Nashville
Sebulsky, Lawrence L.....Memphis
Smith, Frederick W.....Nashville

Texas

Barnes, Johnson P.....Houston
Brelsford, Homer G.....Dallas
Byrd, Houston F.....Dallas
Dill, Emory D. Jr.....Dallas
Gauntt, William C.....Rochester
Kimbrough, Ernest M.....Haskell
Marx, Melvin Jr.....Clarksville
Martin, Frank M.....San Antonio

Washington

Berger, Knute E.....Seattle
King, Robert L.....Seattle
Kintner, William C. Jr.....Seattle
Mansfield, Charles O.....Pateros

West Virginia

Carney, Harry A.....Charleston
Howard, Arthur.....Huntington
Wellman, Garland O.....Kenova

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

State Medical Meeting at Little Rock.—The seventy-first annual session of the Arkansas Medical Society will be held in the Robinson Auditorium, Little Rock, April 17-19 under the presidency of Dr. H. King Wade, Hot Springs. At the opening general session Thursday morning Dr. T. Leon Howard, Denver, will speak on "Renal Pathology in the Making." The house of delegates will meet Thursday afternoon. At the evening public meeting Dr. Harrison H. Shoulders, Nashville, Tenn., President, American Medical Association, will discuss "Some Problems in the Economics of Medical Care." Dr. Geza de Takats, Chicago, will discuss the surgical management of hypertension Friday morning. Among others Drs. Samuel Fomon, New York, will speak on "The Rhinoplastic Operation"; Henry Packer, Memphis, Tenn., "New Drugs in the Treatment of Malaria"; Alexander Marble, Boston, "Present Day Treatment of Diabetes"; Warfield M. Firor, Baltimore, "The Surgical Aspects of Cancer." A memorial service will be held Friday morning at 11:40 in joint session with the Woman's Auxiliary to the Arkansas Medical Society for the twenty-four members of the society who have died since the last meeting.

CALIFORNIA

History of Alameda County Medical Association.—Seven physicians met in the Court House in San Leandro on Aug. 18, 1860 to "draft a constitution and by-laws for the government and regulation of the prospective association." This was the beginning of the Alameda County Medical Society, which has just published a history of the organization covering a period of some eighty-five years. The origins of the book were fostered by the late Dr. Frank R. Makinson and since his death by Dr. Milton H. Shutes of Piedmont. An interesting account of the first doctors to come to California, it shows briefly the part played by them in the development of California railroads, the handling of epidemics and the fight to raise the standards of medical practice in the community. Here are the names of speakers at numerous meetings, among whom were medical authorities of that day from far and wide. The origins and development of hospitals, the expulsion of certain members of the society in the early days for advertising in newspapers and for the preparation and dispensing of "patent" medicines are reviewed. One member of the society, Dr. George C. Pardee, was elected governor of California in 1902 by a large majority. He was "one of the most beloved citizens in the history of Oakland." In 1904 it was suggested to the society that $150 be raised among the members as a contribution to the $25,000 fund that the American Medical Association proposed to create for the family of the late Dr. Walter Reed of yellow fever fame. At a meeting in 1877 it was moved and carried "that the members of the association dispense with smoking during the time of the society's sessions." Dr. J. Horatio Bundy, a member, is said to have introduced cascara sagrada to medicine. In 1917 a compulsory health bill patterned after certain European plans was devised, but at the election in the following year it was defeated by nearly 3 to 1; in Alameda County by 58,271 to 16,546. Adding to the interest of this volume are pictures of pioneer California physicians and of houses in which they lived and carried on the practice of medicine.

CONNECTICUT

Conference of Presidents and Secretaries.—The semiannual conference of the presidents and secretaries of the eight component county associations of the Connecticut State Medical Society was held in New Haven on March 20. Thomas A. Hendricks, Chicago, secretary, Council on Medical Service, American Medical Association, addressed the meeting on "Responsibilities of the Secretary of a County Medical Society." A talk on the activities of state medical journals was given by John E. Farrel, managing editor of the *Rhode Island Medical Journal*. Dr. Cole B. Gibson, Meridan, president of the Connecticut society, presided.

State Medical Meeting.—The Connecticut State Medical Society will hold its 155th annual meeting April 28-30, under the presidency of Dr. Cole B. Gibson, Meridan. The general session will be held in the high school building at Hamden. The house of delegates will meet at the New Haven Medical Association Building, New Haven, Monday afternoon. Among the speakers for the general program will be:

Dr. Alvin L. Barach, New York, Physiologic and Antibiotic Therapy in Bronchial Asthma.
Dr. Elaine P. Ralli, New York, Management of the Complications of Diabetes.
Dr. Richard Schatzki, Boston, Lesions of the Antrum of the Stomach.
Dr. W. Jason Mixter, Boston, Present Status of Management of Ruptured Intervertebral Disk.
Dr. J. William Hinton, New York, End Results and Indications for Thoracolumbar Sympathectomy.
Dr. George A. Perera, New York, Role of Sodium Restriction in Hypertension.
Dr. Herbert C. Maier, New York, Diagnosis and Treatment of Bronchiectasis.
Dr. Richard H. Sweet, Boston, Diagnosis and Treatment of Carcinoma of the Esophagus.
Dr. Franz J. Ingelfinger, Boston, Clinical Significance of Changes in Small Intestinal Function.
Dr. Samuel A. Levine, Boston, Management of Acute Coronary Thrombosis and Its Complications.

At a symposium on the treatment of peripheral vascular diseases Tuesday afternoon Drs. A. Wilbur Duryee and Irving S. Wright, both of New York, and Dr. John Homans, Boston, and at the Wednesday afternoon symposium on psychoneurosis Drs. Jacob E. Finesinger, Boston; Benjamin V. White, Hartfort, and Carl A. L. Binger, New York, will speak. Section meetings to be addressed by various out of state speakers are scheduled for Tuesday and Wednesday afternoons. The annual meeting of the Woman's Auxiliary will be held on Tuesday afternoon at the New Haven Country Club. The annual dinner is scheduled for Tuesday evening at the New Haven Lawn Club.

FLORIDA

Neurology and Psychiatry Society.—The first annual meeting of the Florida Neurology and Psychiatry Society will be held April 20 at the McAllister Hotel in Miami, preceding the annual meeting of the state medical association. The permanent organization of this group is being arranged by Drs. H. Mason Smith, Tampa, and William H. McCullagh, Jacksonville. The group will be addressed by Dr. James B. Lyerly, Jacksonville, on "Surgical Relief of Pain."

Annual Meeting of State Association.—The seventy-third annual meeting of the Florida Medical Association will be held in the Municipal Auditorium, Miami, April 21-23 under the presidency of Dr. Shaler Richardson, Jacksonville. The business meeting will be Monday afternoon and Tuesday morning, with election of officers scheduled for Wednesday. Besides numerous speakers, members of the association, Dr. John H. Dunnington, director, Institute of Ophthalmology, New York, will give an address Tuesday morning on "The Eye in Thyroid Disease." The Woman's Auxiliary will meet Monday and Tuesday at the McAllister Hotel. Various sections and specialty groups will hold meetings, including among others the General Practice of Medicine Society. All persons interested in the postconvention tour to Cuba are requested to communicate with Dr. Carlos P. Lamar, 1010 Huntington Building, Miami.

Temporary Permits to Practice.—To alleviate the medical needs of communities that are either wholly without or greatly in need of a physician, temporary permits to practice medicine within the state are being granted by the Board of Medical Examiners of Florida. The signed request for such services in a certain town or community must originate with the local county medical society, whose prerogative it will be to decide whether or not temporary licentiates shall come among them. The holder of a temporary permit must appear for the next regular examination (June and November); until that time he is expected to remain in his assigned community until licensed by the board. To be eligible to apply for a temporary permit, the applicant must have a diploma from an acceptable medical college of the United States or Canada. Graduates of unacceptable medical schools must take (and receive credits for) a senior year's work in an acceptable medical school of the United States or Canada or must satisfactorily complete one year's assistant residency (following one year's internship satisfactorily completed in an approved hospital) or a residency or a fellowship in medicine, surgery or other specialty in an approved hospital. Also the Florida law requires as an additional prerequisite a certificate of proficiency from the Florida Basic Science Board. The temporary permit need not be recorded. All physicians, however, register annually with the state board of health, paying a fee of $1, and must be approved or disapproved by the state bureau of narcotics for a special narcotic stamp, which is received with the narcotic permit from the collector of internal revenue in Jacksonville or the nearest center. Necessary forms

to be filled out by the applicant and by the officers of the county society and then duly notarized may be obtained from Harold D. Van Schaick, Secretary, State Board of Medical Examiners, 2736 Southwest 7th Avenue, Miami 36.

ILLINOIS

Graduate Education for Local Physicians.—The Illinois State Medical Society held a meeting in East St. Louis April 3 at which authorities in various fields of medicine brought to local physicians of the Tenth Councilor District the newer trends of their specialties. It was eighth in a series of ten such meetings to be held by the society within the last year. The ninth and tenth conferences are scheduled for Mattoon April 17 and Monmouth April 24.

Personal.—Dr. Leonard M. Schuman, Springfield, U. S. Public Health Service, has been appointed chief of the division of venereal disease control in the state department of public health. Dr. Schuman was a district health superintendent with headquarters at Woodstock from August 1941 until July 1943, when he became assistant chief of the division of local health administration, Springfield, until August 1945. He is a graduate of Western Reserve University, Cleveland, 1940.

Northwestern Affiliates with Children's Memorial Hospital.—By the affiliation of Northwestern University Medical School with the Children's Memorial Hospital, Chicago, the faculty and the hospital staff will cooperate in research and teaching related to pediatrics. Further correlation of the work of the two institutions has been arranged, with senior medical students serving part time at the hospital, and staff members of Children's Memorial using the Northwestern laboratories for research. The 252 bed hospital had 3,955 inpatients in 1946 with 1,101 additional patients served in the hospital's clinic. Seventy-one per cent of the care was given free of charge.

Chicago

Personal.—Dr. George K. Fenn, associate professor of medicine, Northwestern University Medical School, and chief of staff at St. Luke's Hospital since 1943, was elected president of the Chicago Heart Association March 4.

Research at Institute for Psychoanalysis.—At the meeting of the National Advisory Mental Health Council in Washington, D. C., in January the council approved three grants for research to be conducted at the Chicago Institute for Psychoanalysis on studies of mental health in connection with physical diseases: $5,000 for a two year study of diabetes mellitus, $4,000 for a two year study of atrophic arthritis and $5,000 for a study of ulcerative colitis.

Ninety Days for Practicing Without License.—Dr. Amante Rongetti, 2900 Van Buren Street, has been sentenced to a ninety day term in the county jail for practicing medicine without a license. Dr. Rongetti, whose medical license was revoked by the state after he had been sentenced to fourteen years on manslaughter charges in 1929, was pardoned May 20, 1942 and arrested again in June 1943. The Supreme Court has ruled that Rongetti must serve the ninety day sentence.

Symposium on the Tuberculosis Problem.—A symposium on recent developments in the tuberculosis problem in Chicago will be held at 8 p. m. April 10 at the Bismarck Hotel at a joint meeting of the Chicago Tuberculosis Society and the Tuberculosis Institute of Chicago and Cook County. Speakers for the meeting are Dr. James H. Hutton, chairman, Tuberculosis Control Committee of the Chicago Medical Society; Dr. A. W. Newitt, Chicago tuberculosis control officer; E. F. Kleinschmidt, director, Tuberculosis Institute of Chicago and Cook County, and Mr. W. P. Shahan, director, Tuberculosis Association of Illinois. Reservations for the dinner to precede the meeting must be made by April 8 through George W. Holmes, secretary, telephone Juniper 3500.

INDIANA

New Obstetric and Gynecologic Society.—An inaugural dinner meeting for the newly organized Indianapolis Obstetrical and Gynecological Society will be held April 9 at the Athletic Club, Indianapolis. Dr. Frederick H. Falls, professor and head of the department of obstetrics and gynecology, University of Illinois, Chicago, will give an illustrated discussion on ectopic pregnancy. The officers of the society, organized January 22, are Drs. Charles O. McCormick Sr., Indianapolis, president; Carl Habich, Indianapolis, vice president, and Lawson J. Clark, Indianapolis, secretary-treasurer.

Third Industrial Health Conference.—The third industrial health conference will be held at Indiana University School of Medicine, Indianapolis, April 16, under the sponsorship of the Indiana State Medical Association committee on industrial health, Indiana University School of Medicine department of public health and the Indiana State Board of Health division of industrial hygiene. The meeting is open to physicians, personnel directors or safety directors. There are no registration fees. Among the speakers will be Dr. Henry H. Kessler, Newark, N. J., member, Council on Industrial Health, American Medical Association, on "Disability Evaluation"; Dr. L. E. Hamlin, medical director, American Brake Shoe Company, Chicago, "Industrial Disease of the Chest"; Dr. Leonard F. Weber, associate professor of dermatology, University of Illinois College of Medicine, Chicago, "Industrial Dermatoses"; Lawrence T. Fairhall, Ph.D., U. S. Public Health Service, Washington, D. C., "Toxicology of Heavy Metals," and Anna M. Baetjer, D.Sc., assistant professor of physiological hygiene, Johns Hopkins University, Baltimore, "Control of Upper Respiratory Diseases."

MASSACHUSETTS

Dr. Rivers to Give the Cutter Lecture.—The Harvard School of Public Health announces that Dr. Thomas M. Rivers, director of the Hospital of the Rockefeller Institute for Medical Research, New York City, will deliver the Cutter Lecture on Preventive Medicine, April 22, 5 p. m., in amphitheater D of Harvard Medical School, Boston. His subject will be "Certain Public Health Aspects of Infectious Diseases." The lectures have been held since 1912. The medical profession, medical and public health students and others interested are cordially invited.

Physicians Art Association.—The Massachusetts Physicians Art Association has been established to stimulate interest in drawing, painting, sculpture and photography. Any member of the Massachusetts Medical Society may join the association by sending $2, the annual dues, to the treasurer, Dr. Robert W. Buck, 5 Bay State Road, Boston. An exhibition will be held in conjunction with the annual meeting of the Massachusetts Medical Society, May 20-22. Additional information may be had by writing Dr. Somers H. Sturgis, Massachusetts General Hospital, Boston 14.

MICHIGAN

Alumni Clinic Day.—One of the speakers at Wayne University Alumni Clinic May 14 will be Dr. Emery A. Rovenstine, professor of anesthesia, New York University College of Medicine, and director, division of anesthesia, Bellevue Hospital, New York, on the subject "Nerve Block Therapy." Dr. Rovenstine in 1938 was guest director of anesthesia at Oxford University, England, and in 1939 guest professor of anesthesia at the University Rosario in Argentina.

NEW JERSEY

Society News.—Dr. Herbert T. Kelly, Philadelphia, chairman, committee on nutrition, Medical Society of the State of Pennsylvania, presented a paper on "Nutritional Integration in Psychosomatic Medicine" before the Middlesex County Medical Society, Metuchen, February 19.

Annual Meeting of State Medical Society.—The 181st annual meeting of the Medical Society of New Jersey will be held in Atlantic City in Haddon Hall, April 22-24, under the presidency of Dr. Frank G. Scammel, Trenton. Among the speakers Wednesday are the following physicians:

Robert E. Gross, Boston, Congenital Atresias of the Alimentary Tract.
Joseph C. Birdsall, Philadelphia, Diagnosis and Treatment of Carcinoma of Prostate.
Abraham E. Rakoff, Philadelphia, Use and Abuse of the Endocrines in Obstetrics and Gynecology.
Franklin L. Payne, Philadelphia, Diagnosis and Management of Endometriosis.
Paul C. Swenson, Philadelphia, Roentgen Findings in Functional Disturbances of Gastrointestinal Tract.
Albert F. R. Andresen, Brooklyn, Allergy in Relation to Gastrointestinal Diseases.
Max M. Strumia, Bryn Mawr, Pa., Blood Proteins.
J. Scott Butterworth, New York City, Advances in the Diagnosis and Treatment of Heart Disease.
Oswald R. Jones, New York City, The General Practitioner and Diseases of the Chest.
Hattie E. Alexander, New York, Newer Concepts and Treatment of Hemophilus Influenzae Meningitis.
Samuel Z. Levine, New York City, Metabolism and Feeding of the Premature Infant.
F. Johnson Putney, Philadelphia, subject unannounced.

General sessions will be held Tuesday afternoon and Thursday morning. An informal dinner dance will be held Wednesday at 7:30 p. m.

NEW MEXICO

State Medical Meeting and Rocky Mountain Conference.—The 1947 annual meeting of the New Mexico Medical Society will be held April 30 to May 3 in Albuquerque, N. M., in conjunction with the fourth meeting of the Rocky Mountain Medical Conference, comprising Colorado, Montana, New Mexico, Utah and Wyoming. The annual business meeting of the New Mexico society will open at 10 o'clock April 30, Dr. Charles A. Miller, Las Cruces, N. M., president, presiding. Among the physicians addressing the conference are the following from the University of Illinois College of Medicine, Chicago:

Warren H. Cole, Treatment of Gallbladder Disease.
Henry G. Poncher, Diagnosis and Treatment of Anemia in Infants and Children.
Ford K. Hick, Management of Respiratory Emergencies.
George E. Wakerlin, Clinical Application of Recent Advances in Gastrointestinal Physiology.
Henry E. Michelson, Minneapolis, Minn., Dermatologic Diagnosis and Treatment for the General Practitioner.
Alfred W. Adson, Rochester, Minn., Diagnosis of the Scalenus Anticus Syndrome.

Other doctors of medicine addressing sessions of the conference include:

Howard C. Naffziger, San Francisco, Neurologic Diagnosis as It Especially Concerns the Internist and General Practitioner.
Wendell G. Scott, St. Louis, Use of X-Rays in Diagnosis of Lesions of Large Intestine and Rectum; Low Back Pain and the Important Part That the Interpretation of Properly Taken Roentgenograms Plays in This Problem.

Ten and fifteen minute question periods will follow the addresses. Round table luncheons will be held at the Alvarado Hotel, with informal discussions by guest speakers. There will be two on general medicine and one each on pediatrics and general surgery. The banquet Friday will be informal.

NEW YORK

Personal.—Dr. Charles M. Carpenter, associate professor of bacteriology, University of Rochester School of Medicine, has been granted two months' leave of absence to direct a commission to survey certain aspects of the venereal disease problem in the Pacific theater for the Surgeon General of the Army.

University News.—Grants for cancer control studies have been made to the following two University of Rochester professors by the National Institute of Health, of which the National Cancer Institute is a unit: Dean S. Tarbell, Ph.D., now working under a Guggenheim fellowship at Oxford University, England, and John R. Murlin, Ph.D., professor of physiology, emeritus.

New York City

Psychiatric Forum.—At a meeting of the Brooklyn State Hospital Psychiatric Forum April 10 at 8:30 p. m. in the auditorium at Brooklyn State Hospital, 681 Clarkson Avenue, Brooklyn, Dr. Lauretta Bender, New York, will speak on "Schizophrenia and Childhood."

Memorial Lecture.—Dr. F. Peyton Rous, member emeritus of the Rockefeller Institute for Medical Research, delivered the Adam M. Miller Lecture on "Cancer as an End Product" at the Polhemus Memorial Building, Brooklyn, March 20. The lecture is sponsored by the Long Island College of Medicine.

Gift to Medical Center Fund.—The New York University-Bellevue Medical Center Fund has received a $100,000 gift in honor of the centennial anniversary of the birth of the late Jacob H. Schiff. The gift was made jointly by the Mortimer and Adele Schiff Foundation, Mrs. Felix M. Warburg and Frederick M. Warburg.

Research at Columbia University.—Among grants recently received by Columbia University, Dr. Frank D. Fackenthall, acting president, announced, were $44,225 from the U. S. Public Health Service for medical research, $37,815.50 from the American Cancer Society, Inc., and $20,700 from the National Foundation for Infantile Paralysis for research in muscle spasm and atrophy.

Tuberculosis Conference.—The Tuberculosis Sanatorium Conference of Metropolitan New York held its thirty-seventh clinical session at Cornell University Medical College, February 19, Dr. William G. Childress, Valhalla, chairman, presiding. Dr. Isadore D. Bobrowitz, medical superintendent, Municipal Sanatorium, Otisville, discussed "Prognosis and Clinical Significance of Minimal Tuberculosis" and Dr. William H. Roper, director, research section, Fitzsimons General Hospital, Denver, discussed the U. S. Army Medical Department's Section for Research on Minimal Tuberculosis.

OHIO

Personal.—Dr. Charles C. Cropper, Lynchburg, will complete fifty years of practice in Highland County next month. He is a graduate of the former Louisville Medical College, Louisville, Ky., and has served as a member of the board of public affairs at Lynchburg for thirty years.

Cleveland Health Museum.—The 1946 annual report of the Cleveland Health Museum, a privately supported institution which has been serving the public for six years, shows that 36,669 persons saw exhibits in the main building and many times that number at extension and loan exhibitions. Seventeen lectures were given during the year by members of the staff to outside agencies. The museum instituted last May three minute radio health broadcasts of station WTAM.

Rat Control Program.—The City of Cleveland Division of Health carried out a rat control program in the Goodrich area last month. A sound movie and a lecture on ratproofing of residences, old and new methods of rat killing and a demonstration comprised the program. 'Area projects of this nature are conducted in an effort to bring fundamental health services to the public on a neighborhood basis. Following a special rubbish collection to help the cleanup of premises, a "bait station" trailer was assigned to the neighborhood for several days to distribute free rat poison.

PENNSYLVANIA

Hospital News.—The Civilian Production Administration has approved the construction of a $1,463,061 building at Philadelphia State Hospital, Philadelphia. The new three story structure will house patients who are convalescing and capable of being employed at useful occupational work at the hospital.

Bone Bank Established.—Establishment of a bone bank to provide a constant supply of bone for grafting operations was announced February 21 by Dr. Leonard F. Bush, the George F. Geisinger Memorial Hospital, Danville, Pa., in a talk before the orthopedic section of the New York Academy of Medicine. The bank, already functioning, was established after experimentation at the New York Orthopedic Dispensary and Hospital. Dr. Bush said the principal value of the bank is that it eliminates the delay in having to perform simultaneous operations to remove the bone from the bone donor and to transplant it in the patient.

Postgraduate Psychiatric Training.—The Western State Psychiatric Institute and Clinic, Pittsburgh, training and research institution of the state mental hospital system, recently sponsored a number of graduate training activities for professional personnel. Last April a conference was held to provide opportunities for consideration of topics demanding cooperative thinking and activities. Specific workshops on professional problems were held after the conference, one on psychiatric treatment attended by clinical directors and physicians from state mental hospitals. A second seminar was held for clinical psychologists. In conjunction with the School of Nursing of the University of Pittsburgh, two meetings were held for graduate nurses, one for those interested in administration and another for nursing educators, which was attended by representatives from New Jersey, Ohio and Kentucky.

Philadelphia

Annual Health Institute.—The seventeenth annual health institute of the Woman's Auxiliary to the Philadelphia County Medical Society will be held April 8 at the auditorium, Philadelphia County Medical Society, Philadelphia. Dr. Pascal F. Lucchesi, Philadelphia, will discuss "Future Plans of the Philadelphia General Hospital," of which he is medical director and superintendent. Other speakers include Dr. Francis F. Borzell, vice speaker, House of Delegates, American Medical Association; Mrs. Edna M. Kech, Harrisburg, director, division of health education, State Department of Health; Dr. M. Clay Stayer, director, bureau of tuberculosis control, State Department of Health, and Dr. Norris W. Vaux, Philadelphia, secretary of health, State of Pennsylvania.

UTAH

Surgical Meeting at Ogden.—The second annual meeting of the Ogden Surgical Society will be held May 15-17 at the Thomas D. Dee Memorial Hospital, Ogden. Among the guest speakers will be Drs. Alton Oschner and Champ Lyons, Tulane University of Louisiana School of Medicine, New Orleans; Herbert D. Adams, Lahey Clinic, Boston; Edgar V. Allen, Mayo Clinic, Rochester, Minn.; Kenneth C. Swann, University of Oregon Medical School, Portland; Paul B. Magnuson, Northwestern University Medical School, Chicago. The annual banquet will be held Friday night.

WASHINGTON

Neurologic Society.—The Seattle Neurological Society has lately been formed with William F. Windle. Ph.D., president; Paul G. Flothow, vice president, and R. Frederick Becker, Ph.D., secretary-treasurer. Full membership is open to all practicing neurologists, neurosurgeons, neuropsychiatrists or neuropathologists in Seattle and its environs and to others interested in these fields.

New Medical-Dental Building.—Ground was broken March 5 for the medical, dental and the nursing building at the University of Washington, Seattle, by Raymond B. Allen, University president, and Dr. Lee P. Sieg, Ph.D., former president. Among the guests were Drs. Ross D. Wright, Tacoma, president of the state medical association; Clarence A. Smith, Seattle, editor of *Northwest Medicine*, and Frank H. Wanamaker, president of the King County Medical Society. Construction started immediately.

GENERAL

Influenza.—According to reports from state health officers to the U. S. Public Health Service, Washington, D. C., influenza was epidemic last month in Texas, Colorado, Kansas, Georgia, Arkansas, Indiana, South Carolina and Virginia, which states accounted for 90 per cent of the total number of cases in the nation, 7,974, for the week ended March 1.

International College of Surgeons Purchases Headquarters.—The International College of Surgeons, U. S. Chapter, has acquired 1516 Lake Shore Drive, Chicago, the former Edward Blair residence, as a permanent home. The building, a four story fireproof structure designed by McKim, Meade and White, will house the offices of the college, library and projected museum and assembly rooms of the organization.

New Society to Study Arteriosclerosis.—The increasing importance of arteriosclerosis as a cause of death and a source of physical and mental disability makes urgent the early institution of effective measures for its control. Clinicians and experimentalists interested in an intensified investigation of all phases of this disease are invited to join the new American Society for the Study of Arteriosclerosis and are urged to get in touch as soon as possible with Dr. Otakar J. Pollak, Wilmington General Hospital, Chestnut and Broom streets, Wilmington 14, Del. The constituting meeting has been called for Monday, June 9, at 9 a. m. at the Hotel Strand, Atlantic City, N. J.

Meeting of Chest Physicians.—The Maryland-District of Columbia chapter of the American College of Chest Physicians will meet April 21 preceding the semiannual meeting of the Medical and Chirurgical Faculty of the State of Maryland at the Belvedere Hotel, Baltimore. Subjects for discussion are "Sarcoidosis," "Congenital Atresia of the Esophagus," "Surgical Treatment of Pulmonic Stenosis," "Chemotherapy of Tuberculosis" and "Correlation of Various Branches of Medicine and Surgery as Related to Diseases of the Chest." Among the speakers are Drs. Cameron Haight, associate professor of surgery, University of Michigan Medical School, Ann Arbor, Mich., and John A. Kolmer, professor of medicine, Temple University School of Medicine, Philadelphia.

Special Society Elections.—The American Cancer Society elected Eric A. Johnston, president of the Motion Picture Producers and Distributors of America, Inc., chairman of its board of directors at its meeting March 7 in Chicago. Dr. Edwin P. Lehman, chief surgeon of the University of Virginia Hospital, Charlottesville, was elected president, succeeding Dr. Frank E. Adair, New York City. Elmer H. Bobst, Nutley, N. J., is serving as national chairman of the 1947 campaign opening April 1 to raise $12,000,000.——At the recent meeting of the American Academy of Pediatrics in Pittsburgh Dr. John A. Toomey, Cleveland, was named president-elect. Dr. Toomey is a professor of clinical pediatrics and contagious diseases, Western Reserve University School of Medicine, and physician in charge of the contagious division at City Hospital.

Medical Supplies for War Needy.—The Medical and Surgical Relief Committee of America is making an appeal for funds, drugs, medical instruments and medical and dental literature to be sent to needy and war devastated areas throughout the world. Since June 1940, when it was founded, the committee has shipped $1,220,916 worth of supplies to institutions. All donated supplies are rigidly checked by experts and reconditioned before shipment. Dr. Eugene H. Pool, New York, acting medical director, heads an advisory committee of physicians including Drs. George C. Andrews, Conrad Berens, Russell L. Cecil, Stuart L. Craig, Joseph Felsen, Franz M. Groedel, Ada Chree Reid, Lieut. Comdr. Carnes Weeks, Philip D. Wilson, all of New York; Rear Admiral Ross T. McIntire, Crenshaw D. Briggs and Daniel Blain, Washington, D. C.; Marjorie E. Reed, Plymouth, Pa., and Allen C. Whipple, Rochester, N. Y.

Postgraduate Medicine—A New Journal.—The Interstate Postgraduate Medical Association has begun the publication of a monthly periodical entitled *Postgraduate Medicine*. The first issue contains signed articles together with pictures of several of the authors, an editorial section, a section entitled This Month in Medicine, another entitled Men in Medicine, a consultation service, questions and answers, a correspondence column, Interstate Postgraduate Notes, pictures of historical epics in medicine and of the 1946 meeting of the association, and a section entitled What Other Editors Think. The editor in chief is Dr. Charles W. Mayo, Rochester, Minn., and the managing editor Dr. Arthur G. Sullivan, Madison, Wis. There are also a surgical, a medical and a specialty advisory board.

New England Diabetes Association.—The first meeting of the New England Diabetes Association will be held April 16 at 7:30 p. m. in the Dowling Amphitheater, City Hospital, Boston. The following clinical program will be presented: Drs. Frank N. Allan and Rosemary A. Murphy, Lahey Clinic, Boston, "Diabetes and Hyperthyroidism"; Francis C. Lowell, associate professor of medicine, Boston University School of Medicine, "Relation Between Insulin Sensitivity and Insulin Resistance"; William R. Ohler, assistant professor of medicine, Harvard Medical School, "Diabetic Coma at the Boston City Hospital," and Dr. Stanley L. R. Robbins, assistant pathologist, Mallory Institute of Pathology, Boston, "Renal Disease in Diabetes." A brief business meeting will follow. Physicians, surgeons, nurses, dietitians and other scientific workers interested in diabetes may apply for membership at the meeting or may write to the temporary secretary, Dr. James H. Townsend, 330 Mt. Auburn Street, Cambridge, Mass.

Decline in Mortality from Cancer Among Women.—The Statistical Bulletin of the Metropolitan Life Insurance Company reports a number of hopeful signs in the current cancer picture. Among white females insured in the industrial department of the Metropolitan, the age adjusted death rate from cancer in 1946 dropped to 78.9 per hundred thousand at ages 1 to 74 years, a new low. About ten years ago the rate was 90 per hundred thousand. Even among white male policyholders the mortality for cancer has shown a slight downward tendency. The gains in the control of cancer are likewise reflected, the bulletin states, in the trend of mortality at the various age periods. The largest improvement in the cancer death rate in the last decade among women was 14 per cent, registered among those between 25 and 34 years of age.. The least improvement, 2.5 per cent, was recorded at ages 35 to 44. The cancer death rate among white men in the past decade has declined moderately at every age except 45 to 54, where there has been a slight increase. In a tabulation of the figures for this insurance experience, substantial declines are observed in the mortality from cancers of accessible sites between 1941-1945 and 1936-1940: for all such sites combined the decrease in death rate amounted to 15 per cent among white males and 9.8 per cent among white females. For such important sites among females as the breast and the uterus, the declines were 3.9 and 12.8 per cent respectively. Even most of the inaccessible cancers have tended to decline in mortality. Only cancers of the respiratory system and cancers classified in a residual group "others and unknown" have shown an important increase in their recorded death rate. These increases, it is said, are to some extent at least spurious and arise out of improved diagnosis and more accurate reporting. While the recent trend of cancer mortality has encouraging aspects, it would be to misread the facts to conclude that anything beyond the mere beginning has been made toward the control of cancer.

CORRECTIONS

J. W. Scott.—In the leading article in THE JOURNAL, March 15, page 735, the name of the third author should have been J. W. rather than G. W. Scott, M.D., Iowa City.

American Surgical Association.—In THE JOURNAL, February 1, page 310, in the "History of the American Medical Association" appears a statement to the effect that the American Surgical Association was organized in 1880 and that it was the first society devoted exclusively to specialists. This statement is incorrect since the American Dermatological Association was organized on Sept. 6, 1876 and the American Surgical Association was not organized until May 31, 1880.

Deaths

Donald Cameron Gordon, Scranton, Pa.; born in Ottawa, Ont., in 1895; McGill University Faculty of Medicine, Montreal, Que., Canada, 1922; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; immediate past president of the Lackawanna County Medical Society; served with the Canadian army in France during World War I; began active duty as a major in the medical corps, Army of the United States, in August 1942; served as chief of radiology at Camp Picket, Va., Woodrow Wilson Hospital, Staunton, Va., at a camp in South Carolina and at Fort Leonard Wood, Mo.; service terminated with the rank of lieutenant colonel Jan. 26, 1946; formerly on the staff of the Carbondale (Pa.) General Hospital; on the staffs of St. Mary's Mater Misericordia Hospital, West Side Hospital and the Moses Taylor Hospital; died January 9, aged 52, of cerebral hemorrhage.

Dyer Findley Talley ✦ Birmingham, Ala.; born in Woodlawn, Ala., in 1865; Medical Department of Tulane University of Louisiana, New Orleans, 1892; member of the Southern Surgical Association and the Birmingham Surgical Society; fellow of the American College of Surgeons; formerly professor of surgery at the Graduate School of Medicine, University of Alabama; member of the founders group of the American Board of Surgery; past president Jefferson County Medical Society and the Medical Association of the State of Alabama; for many years served on the state board of censors and state board of medical examiners; founded the Talley Infirmary; consulting surgeon at the Hillman Hospital; one of the founders of the Norwood Hospital, where he served as attending surgeon and chief of the surgical staff and where he died January 8, aged 81, of pneumonia.

Charles Henry Starkel ✦ Belleville, Ill.; born in Saint Libory, Ill., July 18, 1862; Rush Medical College, Chicago, 1884; at various times served the St. Clair County Medical Society as treasurer, corresponding secretary and vice president; fellow of the American College of Surgeons; formerly health commissioner of Belleville, member of the state board of health and the Illinois State Historical Society; for many years chief surgeon western division of the Southern Railway Company; past president of the Southern Railway Surgeons' Association; served as chief surgeon of the East St. Louis and Suburban Railway Company and chief surgeon of the Southern Coal, Coke and Mining Company; vice president and for many years member of the board of directors of the First National Bank; formerly affiliated with St. Vincent's Hospital; died February 22, aged 84, of cerebral hemorrhage.

John Harvey Law ✦ Detroit; born in Detroit, April 19, 1909; University of Michigan Medical School, Ann Arbor, 1933; member of the Michigan State Hospital Association, serving as president in 1946; member of the American College of Hospital Administrators and the Detroit Rotary Club; deputy chief of the office of civilian defense for Detroit during World War II; a collaborating officer of the United States Public Health Service for the state of Michigan; first lieutenant, medical reserve corps, U. S. Army, not on active duty; in 1945 president of the Greater Detroit Hospital Council; at one time assistant physician at the Eloise (Mich.) Hospital for Mental Diseases; director and treasurer of the Grace Hospital, where he served an internship, residency and as assistant director and where he died January 9, aged 37, of carcinoma of the small intestine.

Charles Fairbank Painter, Boston; Harvard Medical School, Boston, 1895; member of the American Medical Association and the American Academy of Orthopedic Surgeons; past president of the American Orthopedic Association; fellow of the American College of Surgeons; formerly dean and professor of orthopedic surgery at the Tufts College Medical School; at one time on the faculty of his alma mater; served during World War I; on the consulting staffs of the Brockton (Mass.) General Hospital, Sturdy Memorial Hospital, Attleboro and Fairview Hospital, Great Barrington; formerly on the staffs of the House of Good Samaritan, Carney Hospital and the Robert Brigham Hospital; served as librarian of the Boston Medical Library; editor of the Yearbook of Orthopedic Surgery; died January 6, aged 77, of pulmonary edema.

John Marvin Ingersoll, Miami, Fla.; born in Youngstown, Ohio, March 11, 1869; Western Reserve University Medical Department, Cleveland, 1893; clinical professor emeritus of otolaryngology at his alma mater; member of the American Academy of Ophthalmology and Otolaryngology, American Laryngological Association, American Laryngological, Rhinological and Otological Society and the American Otological Society; fellow of the American College of Surgeons; specialist certified by the American Board of Otolaryngology; served during World War I; colonel, medical reserve corps, U. S. Army not on active duty; formerly on the staff of the Cleveland City and Lakeside hospitals in Cleveland; consultant, St. Francis Hospital in Miami Beach; died January 16, aged 77, of uremia.

Henry Parrott Dulaney, Los Angeles; born at Blount, Tenn., in 1877; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1900; in 1910 appointed assistant surgeon at the National Military Home in Johnson City, Tenn.; subsequently served the homes at Danville, Ill., Dayton, Ohio, Marion, Ind., and again at Johnson City; in 1917 placed in charge of the Pacific branch of the National Military Home, now known as the Veterans Administration Center in West Los Angeles, where he has been stationed for many years and where he died January 25, aged 68, of coronary occlusion and diabetes mellitus.

Harry W. Allen ✦ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1900; on the staffs of the Maternity Hospital and St. Barnabas Hospital, where he died Dec. 28, 1946, aged 74, of coronary thrombosis.

M. H. Allen, Lafayette, Tenn.; University of Tennessee Medical Department, Nashville, 1893; at one time state senator; died January 9, aged 83, of cardiac asthma.

John Anderson Jr., New York; College of Physicians and Surgeons, Baltimore, 1913; affiliated with the University Heights Sanitarium and the Westchester Square Hospital; died in the Fordham Hospital January 19, aged 58, of hemoperitoneum, following an automobile accident.

Ross Epting Anderson, Jackson, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1922; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the American Medical Association; served during World War I; on the staffs of the Jackson Infirmary and the Mississippi Baptist Hospital; died in St. Dominic's Hospital January 15, aged 48, of chronic myocarditis.

Charlotte E. Cooke Arnold, North Scituate, R. I.; College of Physicians and Surgeons, Boston, 1893; died recently, aged 86, of arteriosclerosis.

Oscar Frank Baerens, St. Louis; Beaumont Hospital Medical College, St. Louis, 1893; died in the Alexian Brothers Hospital Dec. 31, 1946, aged 76, of cerebral arteriosclerosis.

William Asa Baker, Anna, Ill.; Loyola University School of Medicine, Chicago, 1918; member of the American Medical Association; physician for Community High School Athletics Association and associated with the Chicago and Northwestern Railroad; on the staff of the Anna State Hospital, where he died January 18, aged 57, of cerebral hemorrhage.

Sylvester L. Ballard, Grayling, Mich.; Michigan College of Medicine and Surgery, Detroit, 1905; member of the American Medical Association; served during World War I; at one time commissioner of Bay City; died in the General Hospital, Bay City, January 8, aged 65, of cerebral hemorrhage.

Henry Valentine Bancroft, Blue Mounds, Wis.; Rush Medical College, Chicago, 1885; also a druggist; served as postmaster and village health officer; member of the village board; died January 17, aged 86, of chronic nephritis and coronary occlusion.

Chester LeRoy Barry, Oxford, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; for many years physician to the Maryland division of the Pennsylvania Railroad; served as a member of the board of health and public school board and overseas during World War I; died January 22, aged 72, of hypertension.

Joseph E. Bogar, Rahway, N. J.; College of Physicians and Surgeons, Baltimore, 1892; served for many years as a trustee of the Pennsylvania House of Correction for Women; formerly president of the board of education in Millersburg, Pa.; served as physician and surgeon for the Pennsylvania Railroad; died January 21, aged 75, of cerebral hemorrhage.

Henry Harold Brown, Collegeville, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1896; veteran of the Spanish-American War; died January 18, aged 74, of heart disease.

Mark Atkins Brown ✦ Cincinnati; Miami Medical College, Cincinnati, 1894; since 1942 professor emeritus of medicine at the University of Cincinnati College of Medicine; fellow of the American College of Physicians; past president of the Cincinnati Academy of Medicine; formerly health officer of Cincinnati; for many years affiliated with the Cincinnati General Hospital; died in the Christian R. Holmes Hospital January 13, aged 72, of cerebral hemorrhage.

William Ridgeway Card, Memphis, Tenn.; Louisville (Ky.) Medical College, 1903; served on the staff of the Tennessee Home and Training School for Feebleminded Persons, Donelson; died in the Baptist Memorial Hospital Dec. 27, 1946, aged 72, of carcinoma of the stomach.

George Lafayette Chamberlain, Eldridge, Calif.; Rush Medical College, Chicago, 1891; served during World War I; affiliated with the Sonoma State Home; at one time medical superintendent of the Home for the Feebleminded and Epileptic, Lapeer, Mich.; died in November 1946, aged 77.

Daniel Robert Chase ✠ Major, U. S. Army, retired, Orlando, Fla.; Dartmouth Medical School, Hanover, N. H., 1905; served during World War I; entered the medical corps of the U. S. Army as a major on July 1, 1920; retired Aug. 31, 1932 for disability in line of duty; died May 15, 1946, aged 67.

Edith M. Clime-Weber ✠ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1903; died Dec. 23, 1946, aged 67, of coronary occlusion.

William Harrison Clouse, Canton, Ohio; Bellevue Hospital Medical College, New York, 1885; died in the Aultman Hospital Dec. 28, 1946, aged 90, of cerebral hemorrhage.

Benjamin Miles Deardorff, Clatonia, Neb.; Jefferson Medical College of Philadelphia, 1896; died in Lincoln January 13, aged 74, of uremia.

James Washington Dunn ✠ Cairo, Ill.; Vanderbilt University School of Medicine, Nashville, Tenn., 1892; past president of the Alexander County Medical Society; expert examiner to the Pension Bureau since 1900 and member of the medical advisory board during World War II; on the staff of St. Mary Infirmary, where he died January 10, aged 84, of cerebral hemorrhage.

Ralph Stephen Fisher ✠ Portland, Ore.; Rush Medical College, Chicago, 1910; served during World War I; on the staff of St. Vincent's Hospital; died Dec. 21, 1946, aged 67, of coronary disease.

Camille Joseph Flotte ✠ Passed Assistant Surgeon Lieutenant, U. S. Navy, Norristown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1919; entered the U. S. Navy on April 14, 1921; retired Jan. 1, 1931 for incapacity resulting from an incident of the service; died January 5, aged 51, of cerebral hemorrhage.

James LeRoy Foster, Pittsburgh; University of Pittsburgh School of Medicine, 1913; member of the American Medical Association; specialist certified by the American Board of Pediatrics; on the faculty at his alma mater; on the staffs of the Children's and St. Margaret Memorial hospitals; medical director of the Juvenile Court; died January 16, aged 58, of coronary occlusion.

Marc A. Fournier, Sault Ste. Marie, Mich.; Michigan College of Medicine and Surgery, Detroit, 1891; died January 15, aged 77, of carcinoma of the stomach.

James Thomas Fowler, Birmingham, Ala.; Medical College of the State of South Carolina, Charleston, 1883; member of the American Medical Association; at one time associated with the Jefferson Manly Falkner Soldiers Home of Alabama in Mountain Creek; died January 8, aged 83, of cardiorenal disease.

Thomas Edward Galvin, Boston; College of Physicians and Surgeons, Boston, 1908; died January 18, aged 73, of cerebral hemorrhage.

Carroll Hunter Gerry ✠ Shrewsbury, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1901; died Dec. 24, 1946, aged 70, of myocarditis and arteriosclerosis.

Calogero Giovinco ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1900; an Affiliate Fellow of the American Medical Association; on the staff of the Bushwick Hospital; died January 1, aged 77, of cerebral hemorrhage.

Justin Frank Grant ✠ Boston; Johns Hopkins University School of Medicine, Baltimore, 1903; formerly professor of anatomic embryology and histology at the Atlanta College of Physicians and Surgeons and professor of anatomy and pathology at the West Virginia University School of Medicine, Morgantown; died in Manchester, N. H., January 26, aged 69, of heart disease.

James Alexander Grizzard ✠ Drewryville, Va.; Baltimore Medical College, 1906; president of the Southampton County Bank; died in the Raiford Memorial Hospital, Franklin, January 28, aged 65, of lymphatic leukemia.

Mercer Freeman Hall, Neligh, Neb.; Ensworth Medical College, St. Joseph, Mo., 1901; died in Cedar Rapids Dec. 14, 1946, aged 75, of chronic myocarditis.

Howard Eugene Hamilton ✠ Cleveland; University of Kansas School of Medicine, Kansas City, 1934; served a residency and internship at the City Hospital; served a residency at the University Hospitals; specialist certified by the American Board of Otolaryngology; clinical instructor in otolaryngology at the Western Reserve University School of Medicine; died Dec. 27, 1946, aged 35, of cerebral embolus and rheumatic heart disease.

Vallandingham Hawkins, Fawn Grove, Pa.; Baltimore Medical College, 1894; member of the American Medical Association; died Dec. 13, 1946, aged 82, of carcinoma.

James Wallace Hill, Lebanon Junction, Ky.; University of Louisville Medical Department, 1909; died in the King's Daughters' Hospital in Frankfort, January 27, aged 70, of arteriosclerotic heart disease and multiple myeloma.

Perez Briggs Howard ✠ Newtonville, Mass.; Harvard Medical School, Boston, 1902; served during World War I; died January 18, aged 70, of coronary thrombosis.

Trent Orin Huff, Clinton, Tenn.; University of Tennessee College of Medicine, Memphis, 1934; member of the American Medical Association; formerly prison physician at Petros; died in Macon, Ga., January 6, aged 45, of cerebral hemorrhage.

Samuel Henry James ✠ San Fernando, Calif.; Chattanooga (Tenn.) Medical College, 1906; member of the Medical Association of the State of Alabama; served during World War I; member of the American College of Chest Physicians; formerly associated with the U. S. Public Health Service Reserve; for many years affiliated with the Veterans Administration Hospital at San Fernando; died Dec. 15, 1946, aged 66, of cerebral hemorrhage.

William Daniel James ✠ Hamlet, N. C.; Jefferson Medical College of Philadelphia, 1908; member of the House of Delegates of the American Medical Association, 1926-1927; formerly secretary-treasurer of the North Carolina State Board of Medical Examiners; past president of the Richmond County Medical Society; chief surgeon for the Seaboard Air Line Railroad; founder and chief surgeon of the Hamlet Hospital; died January 15, aged 61, of coronary thrombosis.

Kyle McCue Jarrell ✠ Beckley, W. Va.; University of Maryland School of Medicine, Baltimore, 1906; served as president and secretary of the Raleigh County Medical Society; served one term as deputy sheriff of Raleigh County; vice president of the Beckley National Bank; for many years superintendent of the Pinecrest Sanitarium; died January 24, aged 65, of cerebral hemorrhage.

Charles Kneller Koones ✠ Washington, D.C.; Columbian University Medical Department, Washington, 1887; died January 14, aged 80, of coronary heart disease.

Charles A. Gottlieb Langner Jr., Brownsville, Texas; Johns Hopkins University School of Medicine, Baltimore, 1928; served during World War II; killed January 12, aged 46, in a plane crash.

Joseph Antonio La Palme, Webster, Mass.; Tufts College Medical School, Boston, 1925; member of the American Medical Association and the Connecticut State Medical Society; fellow of the American College of Surgeons; interned at St. Vincent Hospital in Worcester; a lieutenant commander in the medical corps of the U. S. Naval Reserve during World War II; served on the staff of the Day Kimball Hospital in Putnam, Conn.; died January 21, aged 46, of coronary thrombosis.

Charles Francis Lawler, Detroit; Milwaukee Medical College, 1907; member of the American Medical Association; served on the staffs of the Pontiac (Mich.) General Hospital and St. Joseph's Mercy Hospital; died January 13, aged 70, of cerebral hemorrhage.

Fred Allard Lemar ✠ Columbus, Neb.; University of Nebraska College of Medicine, Omaha, 1902; served during World War I; on the staff of St. Mary's Hospital, where he died January 2, aged 72, of heart disease.

Louis Levin ✠ Trenton, N. J.; Jefferson Medical College of Philadelphia, 1919; served as cardiologist to St. Francis Hospital, State Hospital and State Prison; author of "Living Along with Heart Disease"; died January 1, aged 49, of cerebral thrombosis.

Walter C. Lovejoy ✠ Maywood, Ill.; Chicago Homeopathic Medical College, 1891; fellow of the American College of Surgeons; past president of the Aux Plaines Branch of the Chicago Medical Society; charter member and past president of the Maywood Rotary Club; veteran of the Spanish-American War; affiliated with the Westlake Hospital, Melrose Park, where he died January 15, aged 79, of coronary occlusion.

Thomas C. McGonagle, Chicago; Northwestern University Medical School, Chicago, 1898; member of the American Medical Association; at one time on the faculty of his alma mater; on the staff of the Evangelical Hospital; died January 31, aged 79, of seminoma of the testes.

Charles MacGregor ✦ Dayton, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1889; College of Physicians and Surgeons, medical department of Columbia College, New York, 1890; died January 21, aged 78, of cerebral hemorrhage.

Francis Aloysius McMullin, Philadelphia; Jefferson Medical College of Philadelphia, 1901; died January 28, aged 67, of bronchopneumonia.

Irving Oliver Mahr, Boyertown, Pa.; Temple University School of Medicine, Philadelphia, 1912; served overseas during World War I; died in St. Joseph's Hospital, Reading, January 11, aged 56, of coronary embolism.

Philip Manjoney, Central Islip, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1916; served a residency at the Central Islip State Hospital, where he died January 3, aged 57, of adenocarcinoma of the cecum.

Howard Longstreet Maps ✦ Budd Lake, N. J.; New York Homeopathic Medical College and Flower Hospital, New York, 1909; at one time practiced in Passaic, N. J., where he was affiliated with St. Mary's Hospital, serving for many years as president of the staff, and Passaic General Hospital; died in the Morristown (N. J.) Memorial Hospital January 18, aged 61, of coronary thrombosis and cerebral embolus.

Raymond Victor May, Cleveland; University of Wooster Medical Department, Cleveland, 1913; specialist certified by the American Board of Radiology; member of the American Medical Association, the Radiological Society of North America, Inc., the Academy of Medicine of Cleveland and the American College of Radiology; for many years on the staff of St. Luke's Hospital; died Dec. 27, 1946, aged 56, of cancer of the pharynx and diabetes mellitus.

John Artemas Mead ✦ Hattiesburg, Miss.; Mississippi Medical College, Meridian, 1912; Vanderbilt University School of Medicine, Nashville, Tenn., 1914; formerly practiced in Logtown, where he served as health officer of Hancock County; member of the medical reserve corps during World War I; during World War II examining physician for Selective Service, Forrest County; awarded a presidential citation; died February 10, aged 62, of coronary thrombosis.

Robison E. Michener, Mulvane, Kan.; Eclectic Medical Institute, Cincinnati, 1899; served as a member of the city council and the school board; died in the Wichita (Kan.) Hospital January 10, aged 85, of bronchopneumonia.

Charles Donley Miller ✦ Syracuse, N. Y.; Hahnemann Medical College and Hospital, Philadelphia, 1921; served during World War I; medical director of the Unity Life Insurance Company; died January 8, aged 51, of hypertensive heart disease.

Wilfred Porter Miller, Syracuse, N. Y.; University of Maryland School of Medicine, Baltimore, 1917; member of the American Medical Association; served on the staffs of the Syracuse General and St. Joseph's hospitals; died January 16, aged 61, of coronary disease.

Samuel Cargill Milligan, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1891; member of the American Medical Association; veteran of the Spanish-American War; on the staff of the South Side Hospital; died January 4, aged 85, of cerebral hemorrhage.

William Elias Mills, Sumter, S. C.; Medical College of the State of South Carolina, Charleston, 1901; honorary member of the South Carolina Medical Association; member of the American Medical Association; on the staff of the Tourney Hospital, where he died January 6, aged 70, of coronary thrombosis.

Byron Fay Mock, San Diego, Calif.; University of Pennsylvania School of Medicine, Philadelphia, 1925; member of the American Medical Association; died January 3, aged 47, of coronary artery disease.

Benjamin Henry Morris, Tucson, Ariz.; Cornell University Medical College, New York, 1943; interned at the Bellevue Hospital in New York, where he served a residency at the Doctors Hospital; diplomate of the National Board of Medical Examiners; died January 9, aged 31, of coronary thrombosis.

Guy Guerdon Newton, Evergreen, Ala.; Medical College of Alabama, Mobile, 1897; member of the American Medical Association; died January 15, aged 73, of influenza and bradycardia.

Frank Nisbett, Brookland, Ark.; Memphis (Tenn.) Hospital Medical College, 1905; member of the American Medical Association; died in Jonesboro January 11, aged 74, of myocarditis and nephritis.

Eugene E. Northcutt ✦ Newport, Tenn.; Vanderbilt University School of Medicine, Nashville, 1904; medical superintendent of the Dr. E. E. Northcutt Private Clinic and Infirmary; died in St. Mary's Hospital, Knoxville, Dec. 23, 1946, aged 66, of carcinoma.

Charles O'Leary, Providence, R. I.; Long Island College Hospital, Brooklyn, 1893; died January 3, aged 77, of chronic nephritis.

Lewis N. Osborne, Atlanta, Ga.; University of Georgia Medical Department, Augusta, 1898; died January 15, aged 77, of cerebral vascular disease.

Ray Charles Otte ✦ Wellsburg, W. Va.; Western Reserve University School of Medicine, Cleveland, 1929; on the staff of the Ohio Valley General Hospital, Wheeling, where he died recently, aged 42, of carcinoma.

Guy Mannering Owsley, Thorntown, Ind.; University of Louisville (Ky.) Medical Department, 1905; formerly a member of the school and library boards; died January 18, aged 64, of carcinoma.

Charles Pius ✦ Yreka, Calif.; Cooper Medical College, San Francisco, 1906; served during World War I; served as city health officer and as superintendent of the Siskiyou County General Hospital; died January 9, aged 65, of coronary occlusion.

William Edward Quicksall ✦ St. Petersburg, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; at one time on the faculty of his alma mater and on the staff of St. Joseph's Hospital in Philadelphia; on the staff of the Mound Park Hospital, where he died January 13, aged 70, of cerebral hemorrhage.

Richard Gilchrist Smith ✦ Denver; University of Colorado School of Medicine, Denver, 1912; assistant professor of surgery (urology) at his alma mater; member of the American Urological Association; specialist certified by the American Board of Urology; affiliated with the Colorado General Hospital, Swedish National Sanatorium and Denver General Hospital, where he formerly was president of the staff, and the Mercy Hospital, where he died Dec. 9, 1946, aged 65, of coronary artery disease.

Richard Manges Smith ✦ Philadelphia; Jefferson Medical College of Philadelphia, 1927; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society, Radiological Society of North America and the American College of Radiology; demonstrator of radiology at his alma mater; died Dec. 20, 1946, aged 45, of multiple sclerosis.

Sam Sparhawk, Ypsilanti, Mich.; University of Vermont College of Medicine, Burlington, 1926; member of the American Medical Association and the Vermont State Medical Society; served during World wars I and II; in 1946 placed in charge of the Lewis-Pacific Counties Department of Health in Washington; died in the University Hospital, Ann Arbor, January 22, aged 47, of acute peritonitis.

Dillon J. Spotswood, Mobile, Ala.; Medical College of Alabama, Mobile, 1890; died Dec. 1946, aged 82, of accidental suffocation.

H. A. Stuart, Olive Branch, Miss.; Louisville (Ky.) Medical College, 1894; died Dec. 23, 1946, aged 78, of cerebral hemorrhage.

Claude W. Trapp, Lexington, Ky.; University of Louisville (Ky.) Medical Department, 1889; member of the American Medical Association; died in St. Joseph's Hospital January 18, aged 79, of gangrene of the left leg.

Henry Benjamin Watson, Miami Beach, Fla.; University of the City of New York Medical Department, New York, 1888; for many years affiliated with the Metropolitan Life Insurance Company in New York; died Dec. 19, 1946, aged 82, of carcinoma of the prostate.

Jacob Allen Wells ✦ Paintsville, Ky.; University of Louisville School of Medicine, 1911; served as president of the Johnson County Medical Association; died in St. Mary's Hospital, Huntington, W. Va., February 22, aged 66, of coronary occlusion.

John G. Wilkinson, Birmingham, Ala.; University of Tennessee Medical Department, Nashville, 1902; member of the American Medical Association; died January 8, aged 79, of pulmonary embolism.

David Zuckerman ✦ Brooklyn; University and Bellevue Hospital Medical College, New York, 1910; founder, member of the board of directors and chief proctologist at the Crown Heights Hospital; died January 24, aged 60, of coronary thrombosis.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 1, 1947.

More Education for Nurses

The council of the Royal College of Nursing has decided to set up a separate educational establishment. If possible there will be a school within the University of London, and the opportunity will be examined of providing nursing education at both postgraduate and undergraduate levels in addition to diploma courses. University schools of the type envisaged already exist in the United States, Canada and India. In an editorial the *Nursing Times* states that if the universities and nursing profession in this country do not follow that lead British nurses will be unable to compete for the higher nursing posts in the Dominions, colonies and other countries, as they will have no experience of the advanced nursing education at the university level that the rest of the world is beginning to demand.

It is not claimed that a university degree is needed by all nurses. Much simple nursing care can be carried out efficiently and intelligently by any woman of average ability who wants to look after the sick. But the constant advances of medicine and surgery have thrown increasingly technical work on nurses. The British universities have not opened their doors as readily to the technical professions as those of the United States and are stricter in their demands for educational standards of entrants. The Royal College of Nursing does not ask for the lowering of these standards nor does it wish to decrease the prestige of the degree conferred. But, it asks for broadening of the educational facilities within the University of London to secure the position of the British nurse throughout the world.

Rehabilitation Following Chest Surgery

At the Section of Physical Medicine of the Royal Society of Medicine Mr. Holmes Sellor discussed the special subject of rehabilitation following chest surgery, which he said was better in chest than in general surgery, if only because the treatment of chest cases was carried out in institutions where the general tempo of life was more like that of a sanatorium than of a busy city hospital. In chest work the aim was to keep the patient in the hospital until he was ready to return practically to a normal life. Some stayed only four or five weeks in the hospital, but the difficult ones were those with chronic empyema and those with complications, who might have to remain for periods up to a year. Diet had to be considered, as in suppurations the loss of protein might be considerable. The most difficult problem was the psychologic one of the patient in the hospital, for as he improved he became restless and later apathetic. The best example of the long term case was chronic empyema, in which a mass of fibrin was deposited over the pleural surfaces surrounded by an unyielding contracted chest wall. Secondary scoliosis was an appalling deformity often the result of maltreatment in the acute stage.

Chest Exercises

The object was to get the chest wall moving and to prevent any structural deformity from developing. The type of breathing exercise was thus based on inspiration. These inspiratory exercises were new, but physical therapists, who had developed them, had shown their inestimable value. The first secret was the teaching of concentration. Breathing exercises for ten minutes each morning were useless. The patient should be told that of the twenty-four hours eight were sufficient for sleep, eight were enough for meals and play, and the remainder should be given to sedulous training in breathing. He should be taught localized inspiratory exercises, working against some form of resistance, concentrating his mind and activity on the area of chest that it was desirable to move. In empyema it was the basal expansion which was important to regain. By careful concentration it was possible to move one area and only one by voluntary efforts. Other movements were lateral movements, an attempt to get posterior expansion and finally a ripple almost along the anteroposterior line.

After general exercises it was important to see that the stance of the patient and his position in bed were correctly maintained. There was a tendency to avoid discomfort in bed by cramping-in on the bad side of the chest, which actually tended to increase the defects which it was sought to remedy. In the absence of contraindications the patient should be got out of bed, as effective coughing for clearance of secretions was most desirable. For occupational therapy leather work and toy making had proved their value.

A Biography of Sir Jonathan Hutchinson

Though Sir Jonathan Hutchinson, noted as a clinician, died in 1913, his biography, written by his nephew, has only just appeared. On his death many important obituary notices from eminent friends in different branches of the profession (so widely was his work revered), from the ophthalmologist Nettleship, from the surgeon Sir Rickman Godlee and from the physician Sir Thomas Barlow, none dealt adequately with his private life or his general, as apart from his medical, teaching. None of the writers had access to the mass of private letters, particularly those to his wife, which reveal his deepest thoughts. Not being medical, the author asks the profession not to expect medical knowledge on his part. However, he has made good use of the pronouncements from leading men, both at home and abroad, on Hutchinson's work. A surgeon, Mr. J. Johnston Abraham, contributes an interesting foreword telling of his first contact with Hutchinson at the Polyclinic, which he founded for postgraduate teaching after retiring from the active staff of the London Hospital: "A tall bent old man with a great dome of a head, dark eyes looking benevolently through steel rimmed spectacles. Round him he had grouped rows and rows of colored pathologic drawings, mostly of rare skin diseases. He spoke rather slowly and solemnly, and what he said was clear and logical. There was nothing scintillating about it, but you felt he was speaking out of an immense knowledge. Occasionally he illustrated his point by some unexpected simile."

A Clinician with Breadth of View

Mr. Hutchinson begins with the family history and pedigree of his uncle. The family had been Quakers since the origin of that sect, and one of them suffered imprisonment for his faith. With such an upbringing Sir Jonathan Hutchinson remained a deeply religious man. But his knowledge of science, and particularly the doctrine of evolution as expounded by Darwin, modified his views. He accepted evolution with enthusiasm, as it enlarged his hopes for the future of humanity. "The attempt to realize heavenly life on earth" became his religion. The author asks his readers to accept this book "as embodying a very definite message for our generation. Not a theory merely but a life, inspired by a conscious purpose." To the medical readers the book will have a special appeal as a complete revelation of the deepest thoughts and private life of the greatest clinician of his age, a specialist in many fields who, in contrast to the narrowness of outlook associated with that class, always had a breadth of view which can only be described as philosophical. He saw the normal and the abnormal, the common and the rare, science and religion, as one entity.

ITALY

(From Our Regular Correspondent)

NAPLES, March 10, 1947.

Ruptured Intervertebral Disk Simulating Angina Pectoris

The work of Josey and Murphey recorded in THE JOURNAL, June 15, 1946, has had a noteworthy reception in Italy and also in France. The *Presse médicale* of February 5, page 91, points out that it is a work which should attract the attention of the medical profession. Two typical instances occurred in employees of a large Italian street car company. Following a vertebral traumatism sustained in the collision of two vehicles the angina syndrome was apparent from reactions to the more physical effect of walking, though electrocardiographic examination proved negative. A myelogram afterward showed a protrusion of the herniated nucleus pulposus in one of the cervical vertebrae. A radiologist, a surgeon and a pathologist have recently written on the pathology of the annulus fibrosus and the protrusion of the herniated nucleus pulposus, a topic which has been followed in Italy with great interest. The work is presented by a noted neurologist and is compiled by Drs. Imperati, Muscettola and Rubino. Eight cases of hernia of the disk with symptoms varying from lumbago to sciatica are reviewed, all caused by accidents involving injury though the patients were unaware of them at the time or had forgotten them. These cases have been verified by radiography, with the myelogram. The authors have employed surgical therapy but state that they do not share the enthusiasm shown in other countries for this kind of treatment. According to them the "primum movens" more than the injury which causes the hernia of the intervertebral disk is constitutional and depends on the arthritic disposition of the patient. Therefore before resorting to surgical operation they tried a general disintoxicating therapy and hygienic thermal bath treatment. Led to believe that no better means could be applied, they followed the surgical course of treatment only in severe cases as the results were discouraging.

Nobel Prize Winner Chain in Italy

Dr. E. B. Chain, chemist and Nobel Prize winner, and member of the famous team which worked on the discovery of penicillin, has arrived in Italy at the invitation of the Antibiotic Study Center to lecture in Naples, Rome, Florence and Venice. A few months ago Professor Fleming, the honorary president of the Italian Antibiotic Study Center, came to Milan and lectured on the same subject. Dr. Chain, who was received by the chancellor of the University of Naples and all the representations of the Faculty of Medicine, commenced his tour by giving a lecture in the Great Hall of the university. A large number of doctors, physicians and chemists attended. Chain recounted the story of the discovery of penicillin and then went on to discuss the chemical constitution of the molecule of penicillin. He discoursed on a few of the difficulties now being encountered in the attempts being made to produce penicillin synthetically. He clearly pointed out the general differences in antibacterial properties between penicillin and sulfonamides, though he did not hide the fact that the "antibiotic action" remains obscure in many ways. He discussed the case of initial inadequate doses of penicillin during treatment; save for certain bacterial bodies, the drug—notwithstanding bacterial resistance—could become again effective by increasing the doses. Chain however was rather skeptical on the possibilities attached to synthetic penicillin. He widely praised the admirable progress made in the production of the natural product, and particularly with regard to the American industry. He seems to be of the opinion that the supply of natural penicillin will eventually be sufficiently great for world needs and much more economical than the future synthetic product, owing to difficulties of preparation. In an interview Dr. Chain was asked about the different groups of penicillin, viz, F, G, X and K, which he referred to in English terminology as 1, 2, 3 and 4. He stated that K penicillin is easily destroyed by serum of the circulating blood and that it is for this reason that though active in vitro it is less valuable than, for example, penicillin G, the composition of which makes it a more perfect preparation and depends on the chemical constitution of the medium in which it is grown. Chain appeared a genial and great scientist. He insisted, with great affability of manner, that the Italian Bartolomeo Gosio should rather be remembered as a pioneer of the antibiotic drugs. Gosio in 1893 had already isolated Penicillium glaucum in crystalline form—the more common form of mold derived from maize. This discovery, according to Chain, was the first memorable date in the story of penicillin.

SWEDEN

(From Our Regular Correspondent)

STOCKHOLM, March 11, 1947.

Nurses Request Higher Pay

The public is taking great interest in the present fight of nurses versus the government, brought about by the refusal of the government to increase the nurses' pay. An unusually large audience attended the recent meeting of the Swedish Nurses' Association at one of the bigger auditoriums in Stockholm. Every seat was taken, and many people had to be turned away, for the "opinion" meeting promised to be lively. The nurses rose up in holy wrath and had their say on many abuses within the profession, particularly the long hours and underpay. Instead of going on strike, of which there had been rumors, the nurses of the three state hospitals in Stockholm announced that they would resign in a body but stay on the jobs as their own substitutes at a better and fairer rate of pay than they were now receiving as regular employees. The speakers directed strong criticism against the government and demanded better working conditions and no more working on an assembly line basis. One nurse told the audience of the situation at the Serafimer Hospital where 80 male and 300 female patients were waiting to be admitted to the neurosurgical clinic. Owing to the shortage of nurses one entire section has had to be closed, and the waiting period for some patients is as long as two years. The situation in the city of Stockholm hospitals is somewhat better than in the federal, although there also the shortage is strongly felt, and it is almost impossible for them to get nurses aides or student nurses. One hospital has taken to offering cleaning jobs to patients who have recovered and thereby gained some extra working help. The fight is still going on with the public in sympathy with the nurses.

Nordic Surgical Congress in June

The Nordic Association of Surgeons plans to hold its congress in Stockholm from June 26 to 28 and in conjunction therewith celebrate the fiftieth year of its existence. This should actually have taken place in 1943 but had to be postponed because of the war. The Nordic Orthopedic Association will simultaneously hold its first meeting since the war. It is estimated that about 300 surgeons and orthopedists will attend, 100 from Sweden and the remainder from the other Scandinavian countries.

Swedes Help Fight Venereal Disease in Poland

Venereal disease has been on the increase in Poland ever since the war, especially in Masuria, where almost entire villages are contaminated. To help fight this alarming situation a "venereal ambulance" was outfitted by the Swedish Red Cross with the help of a grant of 100,000 kronor from the Help to Europe fund. This ambulance left Sweden recently to spend first three months in Masuria and then travel farther through Poland. A Polish physician, Dr. Josefina Pietrowska, a Swedish nurse and assistant, two Swedish chauffeurs and a jeep made up the party. This big white polyclinic on wheels is the first

of its kind in Sweden. It is a 90 horse power Volvo military bus converted into a waiting room, a treatment room and a sterilizing room. All the equipment is said to be of the finest quality. It is expected that about 100 patients a day will be given prophylactic treatment in Poland. The more severe cases will of course have to be sent to stationary hospitals.

AUSTRALIA

(From Our Regular Correspondent)

March 1, 1947.

Three Babies Die of Tetanus from Infected Talc

Details of the investigation of the fatal illness of 3 babies in Auckland, New Zealand, within a fortnight, have been reported by the New Zealand Department of Health. The investigation began after the death of the first two babies, who were about a fortnight old. The umbilical stump was septic in both cases. One child had been circumcised, but the surgical wound was clean. It appeared that all dressings had been autoclaved, and the only common factor in the nursing of the two babies was the talc used in their toilet. This proved to be made from talc imported from India in unlined jute sacks. The process of manufacture consisted in mixing with perfume and a small portion of boric acid. The third case occurred a week later, and in this, one of the same brands of powder had been used. In spite of the prompt administration of antitetanic serum and penicillin, all 3 babies died. In their case history, particular mention was made of the high degree of muscular spasm in each child and also the hyperpyrexia. The presence of tetanus spores in the infected talc was proved. This form of the silicates of magnesium is found in natural deposits which are quarried or mined, and it is not surprising that contamination with tetanus should occur. Samples of French chalk arriving in New Zealand in previous years have been found to be infected with the spores of Clostridium tetani. The sites where these forms of magnesium silicate are obtained have been used over a very long period and are possible sources of contamination by animal feces. Cultivation of the specimens of talc by the method of Fildes was successful in isolating the organism. The appearance of spores in a culture is not always certain, as it depends on several factors, including the selection of culture medium. A culture may consist of filamentous forms and yet produce a subculture of sporing forms. The organisms isolated from the talc were proved to be virulent for animals. Swabbings from the umbilicus were also examined from each baby, but isolation cultures were not successful. As soon as the disease was recognized, prompt action was taken to withdraw the suspected powder from the market, and precautions for sterilization of talc were instituted. In future, all talc will be sterilized before retail marketing.

Proposed National Pharmaceutical Benefits Scheme

The commonwealth government is considering plans for the introduction of a national pharmaceutical benefits scheme. This is popularly known as "free medicine." Pharmacists are willing to cooperate, provided certain principles affecting their rights are not interfered with. Agreement had practically been reached last year on terms of service, but negotiations were suspended because of the potential threat in certain clauses of the bill which enabled "Friendly Societies" dispensaries to conduct pharmacies and trade generally with the public. Conditions have changed since last these matters were discussed between government representatives and pharmaceutical leaders. The commonwealth now has extra powers, conferred by the recent referendum, and is in a strong position for negotiation. The pharmacists do not wish blindly to obstruct the government's scheme solely because it is a national scheme. Their promise of cooperation was withdrawn because of spontaneous resistance to an action which strikes at one of the fundamentals of pharmaceutical practice—the preservation of their personal and individual rights with regard to the practice of their profession. Pharmacists see a danger that the individual pharmacist will be crushed by group interests—a real menace as one can see from the examples in recent history of the crushing of the small man by cooperative societies, chains and other monopolist trading associations. The pharmacists will resist strongly such encroachment on their rights of private practice. A splendid private service has been given in Australia, and there is no doubt that an equally good national service can be provided by retail pharmacists in cooperation with the commonwealth. Action by the government which would result in the elimination of independent practice by professional men and small traders would be in direct negation of the Labor government's policy, so it is unlikely that the government will force an issue that could not fail to lead in that direction. The minister of health recently met the federal executive of the Pharmacist's Guild to reopen discussions on the Pharmaceutical Benefits Act. These will have an important bearing on the future of pharmacy in this country.

Investigation of Health Services in South Australia

A committee was appointed by the Parliament of South Australia to inquire into and report on the advisability of consolidating the health services of the state into a single department under the minister of health. Four of the seven members of the committee were doctors. Its report was submitted to Parliament on Dec. 4, 1946. The committee found that, in general, the existing organization is a patchwork lacking consolidated statutory control. There is no proof that the work is coordinated into a competent medical service. The functions of the different bodies overlap, and there is lack of liaison between them.

The investigation revealed that the public health machinery of South Australia is still based on the health act of 1898. The health services of the state are divided into two main groups, both under the control of the minister of health. Health services are administered by a central board of health and medical services by the director general of medical services through the channels of the Hospitals Department. The only liaison between the two is an Advisory Committee on Health and Medical Services appointed by the government in 1943. This committee advises the minister of health on health services. There are, however, certain health services not under the control of the minister. It is the responsibility of the Central Board of Health to administer acts of Parliament relating to the various health activities in conjunction when necessary with the Metropolitan County Board and the various local boards of health, of which there are in the state no fewer than 142. The Hospitals Department is controlled by the director general of medical services, who is responsible to the minister of health for the control and administration of hospitals and institutions, which may be classified as government general hospitals, tuberculosis hospitals and mental hospitals.

The Parliamentary Committee recommended that a Department of Health and Medical Services should be established under the control of the minister of health and that a commission to be known as the Commission of Health and Medical Services should also be appointed to control and administer the department and be responsible to the minister, the commission to consist of five members, of whom the chairman would be director general of health and medical services. He should be a medical practitioner and a permanent full time officer of the public service. Two of the remaining members should also be medical practitioners. These proposals are in accordance with the principles held by the South Australian Branch of the British Medical Association. It seems that the government of South Australia is in earnest about the state of its health services and that it will plan wisely for the future. Much will depend, particularly in the initial stages, on the man who is chosen as medical head of the proposed commission.

Correspondence

OBESITY

To the Editor:—Dr. S. Charles Freed, in his article on "Psychic Factors in the Development and Treatment of Obesity" (THE JOURNAL, February 8, p. 369) has emphasized the important psychologic aspects which have often been overlooked. The problem of obesity cannot simply be approached in mechanistic terms of "glandular balance." Dr. Freed has enumerated many more dynamic factors which are essential for a thorough evaluation of the complexity of etiologic factors of obesity. There is, however, also a great danger associated with this type of psychodynamic approach, which has again and again been stressed by our leading clinicians. It concerns the problem of causality and constitution. Psychosomatic concepts must be based on the fundamental question Are emotional factors truly etiologic agents or are pathophysiologic developments and personality characteristics both parallel processes, depending on inherent constitutional qualities?

Dr. Freed has completely omitted to mention the constitutional aspects of obesity. One should not overlook the significant contributions of Constitutional Clinics and the studies by George Draper, Julius Bauer and William Sheldon. According to Draper "General metabolism and body weight are inextricably bound up in the individual constitution of the person, and no broad understanding of the problem can be developed unless it is based on a knowledge of the individuality of each person's body build and energy characteristics." And Bauer says "All obese persons must have a certain individual predisposition, that is, they must have a weight regulating mechanism which is more readily overthrown than the normal one. All cases of obesity are to variable extent endogenous and constitutional in origin."

Being a psychiatrist, I am certainly sympathetic toward Dr. Freed's approach. To be scientific, however, I believe one has to be careful with regard to evaluating causality principles in psychosomatic medicine. No therapy can be rational which is not based on sound recognition of constitutional potentials. No psychotherapy of obese patients has good prospects if constitutional limitations are ignored or overlooked.

F. A. FREYHAN, M.D., Wilmington, Del.

[The letter of Dr. Freyhan was referred to Dr. Freed, who writes:]

To the Editor:—I am in agreement that there is a constitutional aspect to the development of obesity, so that there is in many persons an inherent tendency in this direction. I do, however, disagree that I failed to mention completely these principles. Perhaps I used different terms, but certainly from the following quotations there is a definite implication that such states exist:

"Human machines like other machines differ in efficiency, and the metabolically efficient human body will gain weight on the same intake of food on which the inefficient one will lose weight."

"It is not considered that these factors are specific causes for overeating, but simply they release the nervous energy into the channel of overeating in those persons who tend in that direction. The same psychic factors will produce in other subjects various types of psychosomatic disorders."

I do not list the psychic factors as causative or etiologic for the production of overweight, but rather inciting stimuli in individuals who tend in that direction. Certainly the inability of a patient to restrict the food intake to the proper level, whatever that may be, is purely an emotional problem. The difficulty in restraining the appetite is enhanced by the variety of psychodynamic drives associated with nervousness, social insecurity, childhood training and the like.

S. C. FREED, M.D., San Francisco.

[To this Dr. Freyhan comments:]

To the Editor:—If I may take the liberty to disagree with Dr. Freed's reply, it is for the simple reason that certain fundamental issues are under discussion.

My position is, I believe, identical with the ideas expressed by Drs. George Wilson and Charles Rupp in their article "Present Trends in the Practice of Neurology" in THE JOURNAL, February 22. Both doctors sharply criticize present trends in psychosomatic medicine, saying ". . . it appears that, save for a few isolated exceptions, most of the psychosomaticists have become too preoccupied with the aspects of the psyche, to the neglect of the soma."

Dr. Freed has not at all stressed constitutional aspects of obesity. His references to predispositions are vague and obscured by overemphasis of psychogenic factors. The fundamental problem is whether emotional problems per se, even as "inciting stimuli," cause obesity unless there is already an inherent, constitutional disposition. The term "constitution," which clinicians consider primarily essential in the problem of obesity, is never mentioned in Dr. Freed's article. His article conveys the impression that a psychiatric approach to the emotional problems of the obese individual is the primary therapeutic problem. This assumption, I feel, is not justified, because the constitutional potential limits a priori psychotherapeutic efforts.

The psychiatric profession, of which I am an enthusiastic member, should welcome the criticism of Drs. Wilson and Rupp and demand that psychosomatic studies be based on sound principles of internal medicine as well as psychodynamics.

F. A. FREYHAN, M.D., Wilmington, Del.

PERMANENCE OF FOOTPRINTS

To the Editor:—I should like to draw your attention to a gross error in the article by Dr. Hyman published in THE JOURNAL for Dec. 7, 1946. Dr. Hyman's statement that the footprints of infants taken at birth are useless because they "change after a few months" and therefore are of no value in later establishing the identity of a person shows that Dr. Hyman has no understanding of structure and development of the dermal ridges. Skin patterns are established at the third and fourth fetal months, and from that time throughout life there is no significant alteration in the details of the ridges and the patterns they form. Dr. Hyman is perhaps under the misapprehension that the footprints record only the creases or folds of the skin, which of course do change.

It is quite true that in many institutions the footprints of infants are so poorly made that the dermal patterns are undecipherable. It is therefore important that medical attendants or nurses should be properly trained to take and to read the dermal patterns of both soles and palms.

NORMA FORD WALKER, Toronto.
Associate Professor of Human Biology, University of Toronto Department of Zoology.

NATIONAL DEPARTMENT OF HEALTH

To the Editor:—Referring to your copy of S. 545, it seems to me that the main thing is overlooked and that, to my mind, would be the creation of a department of health with a cabinet officer at the head of it. I believe we are about the only civilized people who do not have a minister of health. I do not imagine that the other departments, such as State, Treasury and Commerce, are governed by any such long complicated bill as S. 545 and a department of health could run without such minute directions.

EDWARD C. ELLETT, M.D., Memphis, Tenn.

Medical Motion Pictures

FILM REVIEWS

Convalescent Care and Rehabilitation of Patients with Injury to the Spinal Cord. 16 mm., color, sound, 1,550 feet (1 reel), showing time forty-three minutes. Produced in 1946 by the Medical Department, U. S. Army. Procurable on loan from Office of the Surgeon General, U. S. Army, Pentagon Building, Washington, D. C. Attention: Chief of the Division of Education and Training.

This excellent picture presents the story and the care of the paraplegic patient from the time he is flown to a general army neurosurgical center until he leaves, walking on his splinted legs. The extraordinary facilities of a technical nature are clearly demonstrated; nowhere else can so much technical pressure be brought to bear for the benefit of the patient. There is some extraneous matter at the beginning dealing with the visits of relatives and the understandable emotional strain which is concomitant with wounds of this type. The first consideration is an evaluation of the patient's general and neurologic condition, and this is adequately shown. There is a short section on the care of the urinary bladder by tidal drainage, through a suprapubic cystostomy with cystometric readings, leading to the development of an automatic bladder. There is an excellent section on the care of decubitus ulcer both by sliding grafts and by whole thickness grafts taken from the posterior aspect of the thigh.

Disabling mass reflexes are seen with gross spasticity. As this prevents adequate nursing and the use of splints for walking, the treatment is shown to consist of anterior spinal root section from the eleventh thoracic to the fifth lumbar on both sides. The operation shows the identification of the first lumbar root by making use of the last tooth of the dentate ligament, which orients the operator. The result is completely flaccid lower limbs, which makes it possible to handle the patient much more easily with regard both to occupational therapy and to subsequent ambulation with braces.

Occupational therapy and morale building are stressed. Everything is done to make the patient personally independent. He is taught to develop power in his arms in order to move himself from bed to chair, and he is taught to care for his bladder. Finally he is taught useful things through which he may eventually earn a living. Stenographic work and radio making and repairing are among these. Finally the patients are taught to walk and to maintain ordinary everyday social contacts.

The emphasis is on technical equipment and mechanical aids, which are in abundance. Little is said about medication or the care of urinary tract infections. The mechanical removal of fecal material from the bowel is shown, but nothing is said about regulating the bowel. The section on the diet may be a little precious, but this may be excused by the necessity of attempting to estimate the number of calories the sick patient receives. The laminectomy for anterior rhizotomy shows the procedure fairly well, though it could be more carefully performed.

These are, however, only minor shortcomings, for the film is of great instructional value to all those unfamiliar with what is now routine treatment for paraplegics in the armed forces. The coordination of the numerous necessary facilities is a stupendous task which has been beautifully accomplished. It is to be hoped that some day civilian patients will have an opportunity to profit from a similar civil setup. The expense would certainly be justified, as this splendid motion picture clearly shows. Medical practitioners, students and specialists will be interested in what can now be done with patients they formerly regarded as almost hopeless. The photography is excellent.

Neurosurgery in an Overseas General Hospital. 16 mm., color, sound, 2,000 feet (1 reel), showing time fifty-five minutes. Produced in 1946 by the Medical Department, U. S. Army. Procurable on loan from Office of the Surgeon General U. S. Army, Pentagon Building, Washington, D. C. Attention: Chief of the Division of Education and Training.

Common army neurosurgical problems are set forth in a film that is divided into three sections dealing with peripheral nerves, penetrating head wounds and spinal cord injuries by missiles. Much of the first part, dealing with the care of the patient, is excellent. The color photography, especially of the operative fields, is poor; details are often scarcely discernible. The difficulty of obtaining detail is not always the fault of the photography, for the surgical field seems always to be covered with a thin layer of coagulating blood. The only means of keeping the wound dry appears to require suction. The ordinary use of gauze sponges would keep the wound cleaner and bring out more detail.

The peripheral nerve section is good and shows carefully planned preoperative and postoperative tests and exercises. The lesions demonstrated involve all the major nerve trunks. The operative technic as photographed leaves something to be desired, but the principles are sound. Tantalum cuffs are shown inserted round all sutures. This is optional and is contraindicated near joints, as the tantalum tends to work out of position. The section on penetrating wounds of the head is relatively short and demonstrates the removal of foreign bodies and tantalum cranioplasty. These are secondary operations, primary sutures and débridement having been carried out elsewhere. The encephalograms shown reproduced rather poorly. Brain abscesses, except in acute cases, are removed in toto; this is not demonstrated, but patients are shown after operation. In 1 case a large subcortical clot is removed. In the case with multiple indriven bone fragments, only one large fragment is removed under the eye of the camera and postoperative x-ray check is not demonstrated. The method of locating a metallic fragment by means of appropriate markings on the skull is shown. The section on spinal cord injuries concerns two typical gunshot wounds, one of the cauda equina and one in the midthoracic region. There is a quick view of the patients before operation on their air mattresses and with their tidal drainage. Nothing is said or shown concerning the infinite care of the skin and urinary tract nor the postoperative results, except to state that some of the patients came to walk with mechanical aids. The operations are both open to the technical objections already stated.

This would be a useful teaching film for medical students and would give some idea of the complexities of the problems which have to be faced. They would become aware of the fact that surgical procedure is only one in a series of steps involving the care of the patient. The film is rather long and when presented in its entirety presents more of a swift bird's eye view rather than anything that can be held and assimilated. It would probably be most useful divided and shown separately in its three principal sections of peripheral nerves, penetrating head wounds and gunshot wounds of the spinal cord.

The Story of Menstruation. 16 mm., color, sound, 400 feet (1 reel), showing time ten minutes. Produced in 1946 by Walt Disney Studios. Procurable on loan from International Cellucotton Products Company, 919 North Michigan Avenue, Chicago.

This excellent film is intended for showing to groups of adolescent girls in the 14-18 year age range to explain the physiology of menstruation with some practical corollaries.

It has long been a problem in schools how to present any material related to the reproductive processes without creating an atmosphere of tension, not to say fear and disgust. As one feminine member of a school board remarked, "I wish it were possible to present sex to girls in such a way that they would not thereafter associate the whole subject with old bewhiskered doctors threatening venereal disease."

This film is an answer to the problem; it accomplishes the extraordinary feat of teaching something essentially serious while preserving an air of good cheer and relieving the tension by unexpected humor. It consists entirely of animation, beautifully colored and accompanied by carefully worded commentary; it begins by indicating the manner in which the pituitary gland governs first the growth of the body and later the function of the ovaries. Next it shows ovulation and the passage of the unfertilized ovum. The thickening and the subsequent menstrual shedding of the endometrium is shown, and this is followed by suggestions as to bathing, diet, exercise and other hygienic measures in relation to menstruation. The film does not undertake too much, since it is specifically adapted to a particular group.

The introduction of this film into the schools should of course be accompanied by the teacher's guide and by the pamphlets for individual distribution.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in THE JOURNAL, March 29, page 964.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 24-26. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery 4.

ARKANSAS: * *Medical. Examination.* June 5-6. Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 5. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Written.* San Francisco, July 7-10. *Oral.* San Francisco, May 10-11. *Oral Clinical Examination for Foreign Medical Graduates.* San Francisco, June 21. Sec., Dr. Frederick N. Scatena, 1020 N. St., Sacramento 14.

DELAWARE: *Examination.* Dover, July 8-10. *Endorsement.* Dover, July 15. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: * *Reciprocity.* Washington, June 9. Sec., Commission on Licensure, Dr. George C. Ruhland, 6150 E. Municipal Bldg., Washington 1.

FLORIDA: * Jacksonville, June 24-25. Sec., Dr. Harold D. Van Schaick, 2736 S. W. Seventh Ave., Miami 36.

HAWAII: *Examination.* Honolulu, July 14-17. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu 53.

IDAHO: Boise, July 14-16. Sec., Bureau of Occupational Licenses, Dr. S. M. Poindexter, Eastman Bldg., Boise.

INDIANA: *Examination.* Indianapolis, June. Exec. Sec., Board of Medical Registration and Examination, Miss Ruth V. Kirk, 627 K. of P. Bldg., Indianapolis.

KENTUCKY: Louisville, Sept. 22-24. Sec., State Board of Health, Dr. P. E. Blackerby, 620 S. Third St., Louisville 2.

MARYLAND: *Medical Examination.* Baltimore, June 17-20. Sec., Dr. E. H. Kloman, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 10-11. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: * *Examination.* Detroit, June 16-18. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing 8.

MINNESOTA: * Minneapolis, April 15-17. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSISSIPPI: Jackson, June 23-24. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson 113.

MISSOURI: *Examination.* St. Louis, May 26-28 and June 9-11. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol Building, Jefferson City.

NEBRASKA: * *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, State Capitol Bldg., Lincoln.

NEVADA: *Examination.* Carson City, May 5. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

NEW JERSEY: Trenton, June 17-18. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Santa Fe, April 7-8. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

NEW YORK: *Examination.* Albany, Buffalo, New York and Syracuse, June 23-26. Sec., Dr. Jacob L. Lochner Jr., State Education Bldg., Albany.

NORTH CAROLINA: *Endorsement.* Raleigh, May 1, June 24. *Examination.* Raleigh, June 23-26. Acting Sec., Mrs. L. McNeill, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: Grand Forks, July 1-4. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Examination.* Columbus, June 17-20. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OREGON: * *Endorsement.* Portland, April 25-26. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland 4.

PENNSYLVANIA: Philadelphia and Pittsburgh, July. Acting Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, June 23-25. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * Pierre, July 15-16. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

TEXAS: Austin, June 5-7 (tentative). Sec., Dr. T. J. Crowe, 918-20 Texas Bank Building, Dallas 2.

VERMONT: *Examination.* Burlington, April 10-11. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: Richmond, June 18-21. Sec., Dr. K. D. Graves, 306 Medical Arts Bldg., Roanoke.

WASHINGTON: * Seattle, April 14-16. Sec., Miss Virginia Wotherspoon, Department of Licenses, Olympia.

WYOMING: *Examination.* Cheyenne, June 2. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: June 17. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

ARKANSAS: Little Rock, May 7. Sec., Mr. L. E. Gebauer, 701 Main Street, Little Rock.

COLORADO: Denver, June 4-5. Sec., Dr. Esther B. Starks, 1459 Ogden Street, Denver.

DISTRICT OF COLUMBIA: Washington, April 21-22. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington 1.

FLORIDA: May 31. Final date for filing application is May 16. Sec., Dr. M. W. Emmel, University of Florida, Gainesville.

IOWA: Des Moines, April 8. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: Ann Arbor and Detroit, May 9-10. Sec., Miss Eloise Lebeau, 101 N. Walnut St., Lansing.

NEBRASKA: Omaha, May 6-7. Dir., Bureau of Examining Boards, State Department of Health, Mr. O. F. Humble, 1009 State Capitol Bldg., Lincoln 9.

NEW MEXICO: *Examination.* Santa Fe, May 4. Sec., Miss Marion M. Rhea, 114 E. March St., Santa Fe.

OREGON: June 7. Sec., Mr. C. D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: *Examination.* Providence, May 14. Chief, Division of Professional Regulation, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Vermillion, June 6-7. Sec., Dr. G. M. Evans, Yankton.

WASHINGTON: Seattle, April 8-9. Sec., Miss Virginia Wotherspoon, Department of Licenses, Olympia.

WISCONSIN: Madison, April 12. Sec., Dr. William H. Barber, Scott & Watson Sts., Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Evidence: Court Not Bound by Preponderance of Expert Testimony.—The plaintiff was convicted of committing a lewd and lascivious act and of being a sexual pervert, from which judgments he appealed to the district court of appeal, second district, division 2, California.

Pursuant to the sexual psychopath provisions of the welfare and institutions code, the trial court appointed three physicians to examine the defendant and make their reports in writing. Two of them expressed the opinion that the defendant was a sexual psychopath; the third thought he was a sexual pervert. The defendant contended that this evidence did not support the finding that he was a sexual pervert. The court of appeals said that the trial court was not bound by a preponderance of the professional opinion but, on examination of the facts stated in the several reports, was at liberty to reach its own conclusions and to make its rulings in accord with the opinion of one of the physicians. The judgment of conviction was accordingly affirmed.—*People v. Parrish, 172 P. (2d) 89 (Calif., 1946).*

Insanity: Necessity for Evidence in Addition to Medical Certificate.—The petitioner was adjudged insane by order of the probate court and committed to the Veterans Administration Facility at Fort Custer, Michigan. From the order of commitment he appealed to the Supreme Court of Michigan.

It was the petitioner's contention that no competent evidence was produced at the hearing to prove his alleged insanity and that therefore the commitment was absolutely void. The probate judge based his findings on the testimony of the petitioner's wife (the only witness) and the certificates of two physicians. After examining the wife's testimony very carefully, the Supreme Court said that it did not prove insanity. We are mindful, the Supreme Court continued, that the probate judge also had before him the certificates of two duly appointed physicians, each of whom certified that petitioner was an insane person. Doubtless the probate judge relied mainly, if not wholly, on such certificates. But, concluded the court, it is settled law that an adjudication of insanity may not be based solely on the certificates of physicians appointed by the court to examine the alleged insane person. Accordingly the Supreme Court held that the order of commitment was void and that the petitioner was entitled to be discharged. —*In Re Haines, 24 N. W. (2d) 526 (Mich., 1946).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

52:881-1066 (Dec.) 1946

Presidential Address: Ways of Doctors and Practice of Physic. E. A. Schumann.—p. 881.
Hydramnios: The Joseph Brettauer Memorial Lecture. L. C. Rivett. —p. 890.
Corpus Carcinoma: Study of 322 Cases. N. F. Miller and C. W. Henderson.—p. 894.
Clinical and Pathologic Aspects of Primary Sarcoma of Uterine Tube. L. C. Scheffey, W. R. Lang and F. B. Nugent.—p. 904.
Some Clinical Aspects of Rh Factor in Obstetrics. E. L. King and J. W. Davenport Jr.—p. 917.
*Review of Cases of Rh Isoimmunization During Past Five Years in Royal Victoria Montreal Maternity Hospital. N. W. Philpott, J. P. A. Latour and G. J. E. van Dorsser.—p. 926.
*Thrombophlebitis and Phlebothrombosis in Gynecologic Patients: Prophylaxis, Recognition, and Treatment. J. V. Meigs and F. M. Ingersoll. —p. 938.
Phlebothrombosis and Thrombophlebitis in Gynecology and Obstetrics. C. G. Collins and E. W. Nelson.—p. 946.
Origin of Certain Perisalpingeal Cysts. R. A. Reis.—p. 964.
Amenorrhea Not Associated with Pregnancy in Young Women. L. M. Randall.—p. 975.
Constriction Ring Dystocia. M. P. Rucker.—p. 984.
Environment in Obstetrics. J. H. Moore.—p. 993.
Endolymphatic Stromal Myosis. D. N. Henderson.—p. 1000.
Value of Plasma Pitocinase Determinations in Obstetrics. E. W. Page. —p. 1014.
Cyclic Changes in Physical and Chemical Properties of Cervical Mucus. W. T. Pommerenke.—p. 1023.
Graphic Portrayal of Relative Pelvic Size. W. F. Mengert and W. C. Eller.—p. 1032.
Time for Postpartum Sterilization: Report of 150 Cases; Bacteriologic Studies on Postpartum Uterus. F. E. Whitacre, with assistance of W. M. Loeb Jr. and Laura Loeb.—p. 1041.

Rh Isoimmunization.—Philpott and his associates reviewed the records of 12,114 deliveries at the Royal Victoria Montreal Maternity Hospital for cases of erythroblastosis, severe jaundice of the newborn, severe anemia of the newborn, hydrops, hemolytic anemia of the newborn or any other diagnosis which might have been classified under hemolytic disease of the newborn. A total of 37 cases was found, of which 30 could be verified either by the demonstration of Rh antibodies in the mothers or on the basis of the presence in the same case of a combination of several other diagnostic points. Observations on surviving livebirths proved the great importance of repeated blood transfusions. Seven of the 30 pregnancies were interrupted at about the thirty-sixth week for the purpose of lessening damage to the fetus, but only 1 living child resulted from these 7 interrupted pregnancies. The present attitude in the Royal Victoria Maternity Hospital is that all obstetric patients are typed with standard Rh_0 agglutinating serum. When a woman is Rh negative, an attempt is made to determine her husband's type. If indicated, Rh negative women are tested for antibodies at the third, sixth and eighth months of pregnancy. If antibodies are present in the pregnant woman, the type and titer are determined; the titration is repeated each month. Increase of the antibody titer to a level of 1:100 is indicative of fetal involvement.

Thrombophlebitis and Phlebothrombosis in Gynecologic Patients.—The material for this report by Meigs and Ingersoll comes from the Massachusetts General Hospital. Tables show the number of patients operated on each year, the number of veins interrupted and the deaths from massive pulmonary emboli. The types of operations which preceded the vein interruptions are listed, as is the number of patients having presumptive evidence of pulmonary emboli. All surgeons at this hospital are convinced that interruption of the femoral veins is essential after a sublethal embolus or infarct. Nearly all are agreed that interruption of the femoral veins is essential after the diagnosis of thrombophlebitis or phlebothrombosis has been definitely made. The danger to the patient from interruption of veins is minimal and the operation is life saving.

Delaware State Medical Journal, Wilmington

18:243-266 (Nov.) 1946

Pyelitis: Early Symptoms, Diagnosis and Treatment. J. C. Birdsall. —p. 243.
Early Malignancy of Larynx: Its Detection and Treatment. K. M. Houser.—p. 249.
Methods of Treatment and Transportation of Compound Fractures of Long Bones. G. O. Eaton.—p. 252.
Function of Immunization Clinic in General Hospital. G. J. Boines. —p. 255.
Surgery of Stomach. G. S. Serino.—p. 259.

18:267-296 (Dec.) 1946

Acute Anterior Poliomyelitis. J. B. Baker.—p. 267.

Endocrinology, Springfield, Ill.

39:361-440 (Dec.) 1946

Influence of Thyroid on Alloxan and Pancreatic Diabetes in Rat. B. A. Houssay, V. G. Foglia and C. Martínez.—p. 361.
Pituitary-Adrenal Cortical Control of Lymphocyte Structure and Function as Revealed by Experimental X-Radiation. T. F. Dougherty and A. White.—p. 370.
Distribution of Feulgen and 2,4-Dini-Trophenylhydrazine Reactions in Normal, Castrated, Adrenalectomized and Hormonally Treated Rats. S. Albert and C. P. Leblond.—p. 386.
Effects of Hypophysectomy, Castration and Testosterone Propionate on Hemopoiesis in Adult Male Rat. R. C. Crafts.—p. 401.
Effect of Stilbestrol on Resistance to Experimental Poliomyelitis. F. J. Curley and W. L. Aycock.—p. 414.
Effects of Insulin and Anterior Pituitary Extract on Blood Amino Nitrogen in Eviscerated Rats. Elizabeth G. Frame and Jane A. Russell.—p. 420.

Michigan State Medical Society Journal, Lansing

45:1551-1692 (Dec.) 1946

Conjunctivitis—Acute, Hemolytic Staphylococcus Aureus. M. D. Campbell.—p. 1615.
Comparative Study of Mercuhydrin and Mercupurin, Oral and Parenteral. M. B. Finkelstein and C. J. Smyth.—p. 1618.
Biomechanical Treatment of 100 Fractured Legs. A. J. Day.—p. 1625.
Preoperative Preparation of Patients with Carcinoma of Colon. J. C. Scully.—p. 1630.

New England Journal of Medicine, Boston

235:885-918 (Dec. 19) 1946

*Necrotizing Renal Papillitis: Form of Acute Pyelonephritis. S. L. Robbins, G. K. Mallory and T. D. Kinney.—p. 885.
Anoxia Neonatorum. C. L. Sullivan.—p. 894.
*Death Following Exposure to DDT: Report of Case. W. R. Hill and C. R. Damiani.—p. 897.
Diagnosis and Treatment of Skin Manifestations of Capillary Fragility. S. M. Peck and A. L. Copley.—p. 900.
Pheochromocytoma of Left Adrenal Gland.—p. 906.
Coronary Sclerosis, with Recent Thrombosis of Circumflex Branch of Left Coronary and Old Recanalized Thrombosis of Descending Branch of Left Coronary Artery: Myocardial Infarction.—p. 911.

Necrotizing Renal Papillitis.—Robbins and his associates discuss the clinical and pathologic aspects of the observations at necropsy in 26 cases of necrotizing papillitis of the renal pyramids, 19 of which occurred in diabetic and the remainder in nondiabetic persons. This lesion is a frequent type of acute pyelonephritis in diabetic patients. Clinically the cases divide themselves into a "fulminating" and a "subacute" group. In the former the presenting syndrome was one of sudden onset of severe systemic infection, often without localizing signs. The "subacute" cases usually presented obvious acute pyelonephritis for weeks to months until, without apparent prodromal symptoms, the urinary tract infection became much severer and the course assumed the character of the "fulminating" cases. Most of the deaths resulted from rapidly progressing uremia—8 in the diabetic group and all 7 in the nondiabetic. Some of the former, however, showed little renal insufficiency and death resulted from overwhelming infections. The pathogenesis is unrelated to any specific bacteria. It probably represents a severe type of inflammatory renal disease to which the diabetic patient and the patient with urinary tract obstruction are peculiarly susceptible.

Death Following Exposure to DDT.—Hill and Damiani report the death of a previously healthy man aged 47 twenty-five days after exposure to DDT. The symptoms began within twenty-four hours after exposure. The disease picture, both clinically and at biopsy, simulated that of periarteritis nodosa, and it is assumed that DDT possesses allergenic properties and should be included among other drugs that are believed to be capable of producing such a sensitizing reaction.

Philippine Medical Association Journal, Manila

22:313-364 (Aug.) 1946

Presidential Address. H. Acosta-Sison.—p. 313.
Geriatrics and Gynecology: Role of Surgery in the Aged. C. P. Manahan.—p. 323.
Management of Placenta Previa, with Special Reference to Willett's Method. G. Rustia and Gloria Tancinco-Yambao.—p. 327.
Pyelonephritis of Pregnancy. J. R. Villanueva, G. P. Marcelo and L. F. Torres Jr.—p. 331.
Incidence of Erythroblastosis Fetalis Among Filipinos. C. P. Manahan and M. Andaya.—p. 335.
Studies on Hydatidiform Mole. H. Acosta-Sison and G. T. Aragon. —p. 339.
Axial Torsion of Uterus. C. P. Manahan and J. Coronado.—p. 443.
Studies on Early Diagnosis of Chorioepithelioma. H. Acosta-Sison and G. T. Aragon.—p. 347.

Quarterly J. Studies on Alcohol, New Haven, Conn.

7:325-498 (Dec) 1946

Changes in Liver and Spleen of Normal and Allergic Rabbits After Intraparenchymal Injections of Serum, and Modifications Induced by Oral Administration of Alcohol. W. N. Rogers.—p. 325.
The Alcohol Dependent. A. Myerson.—p. 341.
Psychiatric Formulation of Alcoholism. G. N. Thompson.—p. 346.
Personality Traits of Alcohol Addicts. E. Bergler.—p. 356.
Alcohol and the Homeless Man. R. Straus.—p. 360.
Survey of Facilities for Care and Treatment of Alcoholism in New York City; The Committee on Public Health Relations of New York Academy of Medicine. E. H. L. Corwin and others.—p. 405.

Rocky Mountain Medical Journal, Denver

43:957-1076 (Dec.) 1946

Colorado State Medical Society: In Retrospect on the 76th Anniversary of Its Organization. A. J. Markley.—p. 975.
Resectable Pulmonary Lesions. W. R. Rumel.—p. 989.

Surgery, St. Louis

20:749-876 (Dec.) 1946

*Analysis of Experience with Streptomycin Therapy in United States Army Hospitals: Preliminary Report. M. E. DeBakey and E. J. Pulaski.—p. 749.
*Blood Loss in Operations: Statistical Comparison of Losses as Determined by Gravimetric and Colorimetric Methods. I. D. Baronofsky, A. E. Treloar and O. H. Wangensteen.—p. 761.
Chemical Alterations Occurring in Surgical Patient and Their Interpretations. W. E. Abbott.—p. 770.
Arterial Injuries of Warfare: Complications and Management. A. P. Preston.—p. 786.
Dermatologic Aspects of Amputation Stumps. W. C. Herold.—p. 804.
Construction of Pseudoareola. M. I. Berson.—p. 808.
*Primary Torsion of Omentum. W. A. Altemeier and C. E. Holzer. —p. 810.
Simultaneous Cholecystenterostomy and Choledochoenterostomy. D. R. Morton, E. Hathaway and A. Brunschwig.—p. 820.
Dissecting Diverticulitis of Colon. S. E. Cohen and B. L. Matthews. —p. 823.
Anatomic Hazards of Lingulectomy. E. A. Boyden.—p. 828.
Method of Cranioplasty Using Ready Made Tantalum Cranioprosthesis. H. J. MacKay and L. A. Russell.—p. 830.

Streptomycin Therapy in United States Army Hospitals.—The clinical investigation reviewed by DeBakey and Pulaski was carried out at thirty general hospitals. In the 706 cases of infections of various kinds, streptomycin was administered parenterally, locally, orally or in combination, depending on the type of infection. Systemic administration of streptomycin maintained therapeutically effective levels in blood and urine. Intrathecal and intrapleural administration proved essential for infections involving the meninges and pleura respectively. In enteric infections the drug must be given orally. In most infections the combined route of administration was found essential. Topical use of streptomycin has not been attended with strikingly beneficial results. In urinary tract infections the successful use of streptomycin depends on a normal flow of urine. Recurrent urinary tract obstruction, urinary retention and undrained or unsterilizable foci, including the prostate, predisposed to relapse or reinfection. Treatment under these circumstances produced drug fastness. Streptomycin appears useful in gonococcic urethritis, especially in cases which prove resistant to penicillin and sulfadiazine. In wound infections streptomycin is effective only as an adjunct to surgery. In enteric infections caused by streptomycin susceptible organisms, the results of treatment are likely to be impressive. In bacteremia highly impressive results were obtained, but eradication of the focus by surgery is essential to success. Experience in tuberculosis was limited, but results justify further studies. In typhoid, streptomycin would seem highly effective in the acute state. In tularemia, streptomycin appeared to be the most effective chemotherapeutic agent. Vestibular disturbance was the only serious complication to streptomycin therapy.

Blood Loss in Operations.—The objective of this investigation by Baronofsky and his associates was to make a comparison of blood loss as measured by the gravimetric method and the loss as computed from the acid-hematin technic. Blood loss data have been assembled for representative surgical procedures. It was found that gravimetric determination of gain in sponge weight provides a reliable estimate of blood loss in surgical procedures. During appendectomy, blood loss averaged 25.8 cc. Hernia and gallbladder procedures averaged 82.9 and 179.4 cc. respectively. Comparison of the data obtained from subtotal gastrectomy for ulcer and carcinoma (499.8 and 455.6 cc. respectively) shows an unimportant difference. Thyroidectomy entailed an average blood loss of 405.6 cc., diffusely enlarged goiters providing most of the bleeding. The average loss during radical mastectomy was 415.4 cc. The average for pneumonectomy and lobectomy was 1,399 cc.

Primary Torsion of the Omentum.—Primary torsion implies the absence of any recognizable etiologic factor such as hernia, neoplasm, adhesive bands or inflammatory processes, while torsion in the presence of any such pathologic process is classified as secondary. The present report is concerned with the primary type of omental torsion, a lesion much less common than the secondary type. Within the past year the authors have operated in 3 cases of gangrene of the omentum caused by unexplained torsion and have found 3 similar cases in the records of the Cincinnati General Hospital during the last twelve years. These 6 cases, and a seventh reported by Andrus in 1926, constitute the largest group observed in any single clinic. The cause of the condition is obscure, but adiposity and strenuous physical activity apparently are predisposing factors. The condition is usually confused with acute appendicitis but should be suspected in obese or robust persons complaining of pain of several days' duration in the right lower quadrant of the abdomen, beginning during strenuous physical activity and being unassociated with vomiting. The treatment of choice is excision of the gangrenous portion of the omentum with ligation of the vessels of its pedicle. The prognosis is excellent.

Virginia Medical Monthly, Richmond

74:1-46 (Jan.) 1947

Some Otolaryngologic Topics of Interest to Internist. W. W. Eagle. —p. 4.
Recent Developments in Gastric Surgery. G. W. Horsley.—p. 10.
Health and Vigor Depend on Soil. P. H. DeHart and R. M. DeHart. —p. 16.
*Trench Mouth (Vincent's Infection), Scurvy and Vitamin C. A. G. Schnurman.—p. 21.
Interpretation of Qualitative and Quantitative Serologic Reports. E. M. Holmes Jr. and Elsie P. Foxhall.—p. 28.

Trench Mouth, Scurvy and Vitamin C.—Schnurman maintains that the fusospirochetes are present in normal mouths as well as in trench mouth, so that a positive gingival smear alone is not sufficient evidence for making a diagnosis of trench mouth. If the vitamin C excretion in a twenty-four hour urine specimen is less than 13 mg., a positive gingival smear is of utmost diagnostic significance. As the result of deficiency in vitamin C an anaerobic state is created in the tissues and at the same time intercellular cement substance breaks down, allowing a port of entry to otherwise harmless saprophytes into an ideal medium where they become pathogenic. The author presents a technic for the rapid determination of vitamin C levels in body fluids and shows that patients with trench mouth who have low vitamin C diets improve without any other treatment than large doses of vitamin C.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

69:157-232 (Sept.) 1946

Subdural Hemorrhage, Cysts and False Membranes Illustrating Influence of Intrinsic Factors in Disease when Development of Body is Normal. K. Inglis.—p. 157.

Fiber Connections of Subthalamic Region and Centromedian Nucleus of Thalamus. P. Glees and P. D. Wall.—p. 195.

Nutritional Neuropathies in Civilian Internment Camp, Hong Kong, January 1942, August 1945. D. A. Smith.—p. 209.

Meningitis Carcinomatosa: Report of 2 Cases. G. J. Dixon, A. S. Kerr and Mary E. Sharp.—p. 223.

British Journal of Dermatology and Syphilis, London

59:1-44 (Jan.) 1947

Psychologic Factors in Etiology of Certain Skin Diseases. R. Klaber.—p. 1.

Psychologic Factors in Skin Disorders. C. H. Rogerson.—p. 6.

Psychologic Factors in Etiology of Certain Skin Diseases. A. W. Watt.—p. 13.

British Medical Journal, London

2:975-1012 (Dec. 28) 1946

Tuberculosis in Industry. F. Heaf.—p. 975.

Internal Combustion Engine and Spread of Disease. G. M. Findlay.—p. 979.

Abacterial Pyuria, with Special Reference to Infection by Spirochetes. W. E. Coutts and R. Vargas-Zalazar.—p. 982.

Peripheral Nerve Injuries: Recent Progress in Treatment. T. B. Mount.—p. 983.

*Acute Appendicitis in Aged. D. G. Simpson.—p. 986.

Acute Appendicitis in the Aged.—According to Simpson from 1 to 2 per cent of attacks of acute appendicitis occur in patients over 60 years of age. The symptomatology differs considerably from the usual pattern in younger patients, but nevertheless there is a fairly well defined syndrome in the aged. Pain is often poorly localized, though nearly always present, and becomes intense only when peritonitis has supervened. The general reactions of nausea, vomiting, fever and elevated pulse rate are not found, though a slight fever is recorded in some cases. The localizing signs of rigidity, tenderness and pain on rectal examination are vague and inconclusive or are absent. Thus in the early stages the patient does not appear ill. Hence many cases are not seen until peritonitis has developed. Gangrene, perforation and peritonitis develop rapidly. In this advanced stage the condition may be confused with intestinal obstruction, and time may be lost in attempts to locate a growth. The author discusses the therapy (1) when there is a confident preoperative diagnosis, (2) when acute appendicitis is merely suspected and (3) when acute appendicitis is not diagnosed before operation. An illustrative case at the advanced age of 85, with survival, is reported.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

53:485-584 (Dec.) 1946

Use of Radiology in Predicting Difficult Labor. J. C. Moir.—p. 487.

Nutrition of Expectant and Nursing Mothers in Relation to Maternal and Infant Mortality and Morbidity (The People's League of Health). J. Young and others.—p. 498.

Sensitization of Vascular System in Preeclamptic Toxemia and Eclampsia. F. J. Browne.—p. 510.

*Superiority of South African Negro or Bantu as Parturient. O. S. Heyns and S. Shippel.—p. 519.

Blood in Pregnancy: Part II. Blood Volume, Cell Volume and Hemoglobin Mass. M. H. Roscoe and G. M. M. Donaldson.—p. 527.

*Survey of Relation Between Epilepsy and Pregnancy. C. W. F. Burnett.—p. 539.

Myasthenia Gravis and Pregnancy (Case Report). G. S. Adam.—p. 557.

South African Negro or Bantu as a Parturient.—Heyns and Shippel made an analysis of deliveries in 1,433 Bantu and 5,059 European women. A highly significant statistical difference for operative delivery was found, which shows that the European requires assistance at delivery more often than the Bantu. Maternal and fetal mortality were low in both series. Other features concerning parturition were analyzed, and it has been proved that the Bantu in her own home is a more efficient parturient than the European woman.

Relation Between Epilepsy and Pregnancy.—Following a review of the literature on epilepsy that complicates pregnancy, labor, the puerperium or lactation, Burnett says that at the West Middlesex Hospital during the seven years 1939 to 1945 inclusive there have occurred 21 deliveries in 18 epileptic mothers. Records of 19 of these pregnancies in 16 patients have been available for analysis. In only 1 case was there a family history of epilepsy. Four cases of menstrual epilepsy were encountered, of which 3 became worse during pregnancy. There were 2 cases of gestational epilepsy, 1 of which began in the pregnancy under review and 1 which began in a previous pregnancy. There was a total of 8 cases in which epilepsy became worse during pregnancy. In 6 cases 1 or more signs of preeclamptic toxemia were present. There were no fits during labor and none began during the puerperium. All infants were alive and healthy with the exception of 1 stillbirth. Breast feeding was allowed in 14 of the 18 cases and it never aggravated the epilepsy. However, breast fed babies tended to be sleepy if the mother received a sedative mixture containing bromides. The author presents 1 case of status epilepticus that occurred during pregnancy and in which termination of pregnancy was successful. He advocates interruption as the method of choice in such cases.

J. Royal Inst. Public Health and Hygiene, London

9:365-408 (Dec.) 1946

*"Food Habits and Dental Caries": Observations on Distribution of Dental Caries in World, and Suggestions as to Causes. H. H. Neumann.—p. 373.

The Air of London. C. J. Regan.—p. 382.

Food Habits and Dental Caries.—From the observation of the condition of the teeth and of the eating habits in different countries, as well as by comparison with the pathology of the bony skeleton, Neumann concludes that the primary etiologic factor of endemic dental caries lies in a deficiency of tough food. This deficiency leads through disuse and not through an undersupply of minerals to decalcification and porosis and thus exposes the teeth to the attack of the bacterial flora in the mouth. The prevention of dental caries consists accordingly in supplementing the regular soft diet with sufficient tough foodstuffs. An ideal means would consist in the addition of soft sugar cane to the diet, while a more practicable way to provide it to some extent is through the daily consumption of some tough breadcrust.

Lancet, London

2:931-966 (Dec. 28) 1946

Palindromic Rheumatism. F. P. Weber.—p. 931.

Bodily Changes During Abreaction. R. L. Moody.—p. 934.

Further Observations on Vitamin C Survey of Medical Students. M. P. Durham, G. E. Francis and A. Wormall.—p. 936.

Feminsation Associated with Carcinoma of Adrenal Cortex. A. J. S. McFadzean.—p. 940.

Acute Infectious Lymphocytosis in England. A. J. Steigman.—p. 944.

*Treatment of Ulcerative Colitis with Thiouracil. L. Martin.—p. 944.

Treatment of Ulcerative Colitis with Thiouracil.—Martin thinks that while the cause of ulcerative colitis remains unknown it is justifiable to test any empirical remedy. He describes 4 cases in which improvement followed the use of thiouracil. The optimal size and duration of thiouracil dosage must be determined by further trials. Since ulcerative colitis is a chronic disease characterized by spontaneous and unpredictable remissions, further long term observations alone can show whether thiouracil treatment can alter the natural course of the disease. The author directs attention to the fact that thiouracil is chemically similar to synthetic 5-methyl uracil, which is effective in treatment of the anemia and diarrhea of tropical sprue.

Practitioner, London

158:1-96 (Jan.) 1947

Diagnosis and Decision in Acute Abdominal Emergencies. H. Ogilvie.—p. 2.

Acute Cholecystitis. J. Walton.—p. 11.

Acute Pancreatitis. J. Morley.—p. 17.

Perforated Peptic Ulcer. C. F. W. Illingworth.—p. 24.

Acute Intestinal Obstruction. I. Aird.—p. 31.

Biliary and Renal Colic. T. L. Hardy.—p. 37.

Rhesus Incompatibility. I. A. B. Cathie.—p. 47.

Bandage in Varicose Conditions. R. R. Foote.—p. 60.

Lighting and Vision. H. C. Weston.—p. 67.

Hay Fever Prophylaxis in Royal Air Force. P. D. Bedford.—p. 73.

Pain and Its Problems: I. Physiology of Pain. E. D. Adrian.—p. 76.

Presse Médicale, Paris

54:725-744 (Nov. 2) 1946

Bioclinical Research on Wine: Wine and Vestibular Chronologic Symptoms. G. Mouriquand, J. Coisnard and Mrs. V. Edel.—p. 725.
Actual Treatment of Kala Azar. P. Giraud and R. Bernard.—p. 725.
Colorectitis in Deported Persons. G. Faroy, J. Arnous and Richard.—p. 726.
*Influence of Sex of Donors and of Recipients on Incidence and Severity of Accidents in Course of Blood Transfusions. A. Hustin and R. Rémy.—p. 728.
Use of Emetine for Combating Severe Pyogenic Infections. E. Melchior.—p. 729.
Psychosomatic Medicine. H. Hécaen and H. Duchène.—p. 730.

Importance of Sex of Donors and of Recipients in Blood Transfusions.—Hustin and Rémy report 80 reactions (9.2 per cent) in 864 blood transfusions given to 425 men and 439 women at a blood transfusion center in Brussels during 1942. The incidence of reactions was 5.3 per cent for cases in which both donor and recipient were men and 17.3 per cent in those in which both donor and recipient were women. The reactions were more severe if the donor was a woman, and particularly if the recipient also was a woman. The ratio of reactions was 7.2 per cent if the donors were only men and 7.7 per cent if the donors and the recipients were of different sex. The difference of 0.5 per cent does not warrant the exclusion of women as blood donors, but crossing of sexes is suggested for blood transfusions.

Semaine des Hôpitaux de Paris

22:2011-2048 (Nov. 28) 1946

Considerations on Mortality Factors in Diabetic Coma. R. Boulin.—p. 2011.
Abbreviated Hyperglycemia Test and Diagnosis of Diabetes Mellitus. R. Boulin.—p. 2016.
History of Hypoglycemia. R. Boulin.—p. 2019.
Hypoglycemia and Traumatism of Pancreas. R. Boulin, Uhry and Piérard.—p. 2021.
*Sequels of Hypoglycemic Accidents. R. Boulin.—p. 2024.
Globin Zinc Insulin. R. Boulin and Piérard.—p. 2029.

Sequels of Hypoglycemia.—According to Boulin hypoglycemia may be followed by retinal hemorrhages, by severe cardiac insufficiency or by myocardiac infarction and particularly by nervous disorders of various types, such as hemiplegia, epileptic attacks and idiocy. These irreversible manifestations are related to a great variety of lesions such as edema or hemorrhage. There is no consensus with regard to their pathogenesis; the majority of the authors believe that some type of asphyxia of the nervous centers is responsible. The symptoms of hypoglycemia are frequently confused with those due to coma of acidosis. The consequent administration of supplementary massive doses of insulin aggravates the hypoglycemia. Intravenous injection of hypertonic glucose solution, calcium gluconate and vitamin B_1 is the treatment of choice.

Schweizerische Zeitschrift für Tuberkulose, Basel

3:165-316 (No. 3) 1946

Renal Tuberculosis. H. U. Gloor.—p. 165.
*Silicosis and Hematogenous Tuberculosis. R. Zollinger.—p. 205.
Investigations on Pulmonary Tuberculosis Among the Underprivileged and Relations to Economic Condition. J. Bucher.—p. 279.
Artificial Paralysis of Diaphragm and Pneumoperitoneum. G. Maurer and J. Morin.—p. 309.

Silicosis and Hematogenous Tuberculosis.—Pathologic anatomic studies on 8 patients revealed to Zollinger that the association of silicosis with tuberculosis produces the anatomic conditions for increased passage of tubercle bacilli into the blood. The small pulmonary arteries and veins undergo some destructive inflammation and are thus deprived of their elastic tissue, an important defensive element against the tuberculous invasion. Silicosis produces many more contacts between tuberculous foci and the vessels than tuberculosis alone. In this way the tendency to hematogenous spread in the combination of tuberculosis and silicosis is explained. Furthermore, the destruction of lymph nodes by silicotic granulation tissue transfers tubercle bacilli into the blood directly as well as through the thoracic duct. The vascular damage due to silicosis plays a predominant part in the hematogenous dissemination.

American Review of Soviet Medicine, New York

4:99-192 (Dec.) 1946

Filtrability of Tumors Induced by 1,2,5,6-Dibenzanthracene. L. A. Silber—p. 100.
Tumor Origin as Determined by Tissue Culture. A. D. Timofeyevski.—p. 106.
Toxin Therapy of Experimental Cancer: Influence of Protozoan Infections on Transplanted Cancer. G. Roskin.—p. 111.
*Cytotoxic Factor in Blood of Cancer Patients. G. Roskin.—p. 115.
Toxicity of Blood in Cancer: Serodiagnosis of Malignant Tumors. G. Roskin—p. 118.
*Cancerolytic Substance of Schizotrypanum Cruzi. N. G. Klyueva and G. Roskin.—p. 127.
Gastric Resection for Cancer. I. N. Ishchenko.—p. 130.
Recognition of Gastric Carcinoma. S. M. Katsnelson.—p. 134.
Bronchogenic Carcinoma. R. G. Shik.—p. 142.
Diagnosis of Malignant Growths from Fresh Smears. A. Y. Altgauzen.—p. 148.
Transplanted Cancer of Liver. L. S. Morozenskaya.—p. 152.

Cytotoxic Factor in Blood of Cancer Patients.—Roskin and Nastyukova demonstrated toxicity of the blood of patients with malignant tumors as well as of animals with induced tumors. The method employed was based on sensitivity of the paramecium to the toxic factors in the blood of cancer patients. The toxic effect which manifested itself in the destruction or in delayed division of the paramecium depended on two factors: one, specific cytotoxic factor and another which was apparently identical with the complement. Roskin attempts to demonstrate the specific toxicity of the serum of cancer patients. He hopes that clinical tests on a wider scale will give more information as to the species specificity of the toxic factor, the early toxicity in the blood of cancer patients and the prognostic value after irradiation or operation as well as the nature of the factor.

Cancerolytic Substance of Schizotrypanum Cruzi.—Klyueva and Roskin found that when mice with transplanted adenocarcinoma are infected with the South American trypanosome Schizotrypanum cruzi, the causative agent of Chagas' disease, it is possible to obtain cures in 70 per cent and a slower rate of tumor development in the remainder. This inhibitory action of Schizotrypanum is not limited to adenocarcinoma of mice but with less clearness may be shown for Crocker sarcoma, cancers 63 for the rat cancer of Flexner-Jobling. In normal animals the Schizotrypanums at certain stages of the infection gather in internal organs; in cancer animals the organisms gather in the tumor, that is, there is a tumor tropism phenomenon. The Schizotrypanums invade the malignant cells, in which degenerative changes may soon be noted, beginning with destruction of the nucleus and gradually the dissolution of the cell.

Nordisk Medicin, Gothenburg

32:2309-2380 (Oct. 11) 1946

Present Day American Surgery: Some Travel Impressions. G. Bauer.—p. 2309.

Hospitalstidende

Chemotherapy in Appendicitis-Peritonitis. F. Sørensen.—p. 2313.

Norsk Magasin for Lægevidenskapen

*Roentgenologic Determination of Size of Heart. T. Denstad.—p. 2341.

Hygiea

Congenital Cystic Fibrosis of Pancreas. K. Kaijser and C. W. Lundquist.—p. 2361.

Roentgenologic Determination of Size of Heart.—Denstad compared measurement of the size of the heart by Groedel's lung-heart quotient and the heart volume per square meter of body surface according to Jonsell's modification of Rohrer-Kahlstorf's formula in 377 adult patients (152 men, 225 women), 45 men and 60 women having no cardiocirculatory disturbances. He asserts that as a rule beginning enlargement of the heart is not demonstrable by either of these methods. Volume determination affords a more accurate expression of the size of the heart than the quotient. The heart is smaller in women than in men and also in relation to the breadth of the thorax and the body surface. In series determinations both methods are satisfactory, but here also volume determination gives a better picture of volume changes. In double determination caution is called for in drawing conclusions as to true changes in the size of the heart, especially in case of smaller deviations. Despite its important place in cardiologic diagnosis, x-ray determination of the size of the heart should supplement clinical evaluation.

Book Notices

An Integrated Practice of Medicine: A Complete General Practice of Medicine from Differential Diagnosis by Presenting Symptoms to Specific Management of the Patient. By Harold Thomas Hyman, M.D. Volumes I-IV, and Index. Cloth. Price, $50 per set. Pp. 1,032; 1033-2010; 2011-3095; 3097-4131; 4133-4336, with 1,184 illustrations and 319 Differential Diagnostic Tables. W. B. Saunders Co., W. Washington Sq., Philadelphia 5, 1946-1947.

The ultimate aim of the author was the production of an integrated practice of medicine written to meet the requirements of the general practitioner. This attempt to correlate the great advances made in the various specialties to the immediate problem of the patient in order to enable the practicing physician to view his patient not as a complex of isolated systems but as an integrated individual is most commendable. The recent progress in psychosomatic medicine has been concerned with this emphasis on the integration of the entire organism. More and more the necessity for a broader knowledge of all the specialties becomes apparent. The general practitioner should be able to serve competently from 60 to 80 per cent of the patients who consult him; the rest may require additional consultation. In the former group a variety of symptoms and diseases may tax the ingenuity of the practitioner to the utmost. Consequently a ready reference library is essential, and for that purpose these books are admirably suited and can be recommended.

Volume I is divided into six sections, on the general reactions of bodily tissues, infections, allergy, neoplasms, metabolism and poisoning. An admirable attempt is made in the first section to review briefly the basic principles of histology, cellular physiology and biochemistry, pathology and pathologic physiology. Unfortunately the author hurries into a series of tables on the differential diagnosis of hypopyrexia and hyperpyrexia instead of carrying to completion, in a somewhat more detailed fashion, his plan of refreshing the practitioner with a renewal of acquaintanceship on some of the more important aspects of the basic sciences as related to tissue physiology and pathology.

The section on infections is introduced by a short review of bacteriology, serology, immunology and nursing care of the infectious patient. Chemotherapy and antibiotics are discussed along with the older anti-infective agents before the specific infectious diseases are described. Infectious diseases are arranged and discussed in the familiar textbook fashion, but the attempt to tabulate all information which can be put into tables and to include in the discussion of each disease a multitudinous array of scientific facts sometimes leads to confusion. One reads of the pneumococcus and its characteristics, modes of invasion, sensitivity to serums, sulfonamides and penicillin but is abruptly startled to find himself confronted by advice to refer to such and such a page in volume III for a discussion of lobar pneumonia. Admitting the difficulties in organizing a complete practice of general medicine in a single textbook of four volumes, the multiplication of tables and numerous instructions to refer to other pages envisages the weary physician thumbing through a chain of page references one after the other to complete his picture of a single disease process. In general, the information on infectious diseases is adequate and current with rather more space devoted to laboratory data than to facts of value in bedside examination and diagnosis. Color plates of exanthems, microscopic slides and primary lesions are excellent.

The tabulated treatment schedules for syphilis should prove valuable. Eighteen pages are devoted to allergy and of necessity include only a superficial discussion of the subject. However, other manifestations of allergic responses are discussed in sections where the particular shock organ involved would naturally place them. The section on neoplasms is little more than a brief discussion of pathology and modes of treatment and could well be omitted, since the various tumors are described in the discussion of the disease processes in each body system in other sections of the text. The section on metabolism is divided into four chapters, on an introduction to the study of metabolism and nutrition, which includes a brief, concise description of metabolism of the major food components, minerals and vitamins; the American diet; practical dietotherapy; differential diagnosis, and the management of the common disorders of metabolism. The information presented is sufficient to meet the needs of the practitioner. The section on the circulatory system completes volume I. It begins with the basic physiology of the cardiovascular system and covers the functional and organic disturbances encountered in practice. A chapter on electrocardiography with eighty representative tracings is included. Tables of normal and abnormal variations are given. Unfortunately, except for an expert, this chapter is quite confusing and would not enable the practitioner to interpret his own tracings, yet one gains the impression that this was intended in this chapter. On the whole, this entire section is complete and concise and contains frequent personal opinions of the author which he has found successful in practice. This is a welcome departure from the usual textbook type of presentation.

Volume II consists of sections on the blood, endocrine, eye, nervous and digestive systems. The chapters on psychiatry and neurology have been written in a clear and concise manner and adequately meet the needs of the practitioner. In the discussion of hematologic conditions, the tables were found to be of great help in understanding the many variations. The chapter on the eye was found to be adequate for the purposes of the general practitioner. In the chapter on endocrinology there are some assertions which are open to criticism. For instance, on page 1254 it is stated that a glucose tolerance is mandatory if the fasting blood sugar is below 200 mg. Repeated high fasting blood sugar levels may be as diagnostic as a glucose tolerance test. On page 1250 the normal fasting blood sugar levels are given to be 120-150 mg. per hundred cubic centimeters. These are higher than the generally accepted levels in use today. It is also stated that a low basal metabolic rate is an indication for thyroid medication. A low basal metabolic rate may actually be misleading, especially in the management of obesity, since the test is calculated on the basis of actual and not ideal weight. Also the use of thyroid when diabetes is present can be quite hazardous.

Volume III consists of sections dealing with the respiratory, urinary, reproductive, skeletal and locomotor systems as well as obstetrics and pediatrics. The same general procedure is followed throughout with the frequent use of tables and cross references. On the whole, the descriptions of the various disease entities are accurate and the space devoted is commensurate with the relative importance and frequency of the disease. The atypical pneumonias, in particular, are adequately discussed. The superiority of frequent chest roentgenograms over the routine physical examination for the detection of early subclinical tuberculosis is not sufficiently emphasized. By the time signs of activity appear the process can no longer be considered "early" tuberculosis. In particular, the diuretics are well covered and completely presented.

Volume IV consists of sections on the tegumentary system, physical diagnosis, laboratory methods, therapeutics, pharmacotherapy, major and minor surgery, prognosis and an appendix. The section dealing with the integument covers 366 pages and contains many tables of differential diagnosis plus a sizable number of excellent colored plates. Many uncommon and, in fact, extremely rare conditions even in a dermatologic practice are discussed at some length. The author has devoted too much space to a discussion of these cutaneous disorders, and too much emphasis is placed on the infrequently occurring diseases. Here again some of the diagnostic tables tend to be confusing. In contrast to the other sections, the chapter dealing with the history and physical diagnosis seems unnecessarily elementary and superfluous in a work of this kind. The section dealing with laboratory methods includes technical considerations as well as normal and abnormal findings and the respective conditions in which the latter occur. Approximately 160 pages are devoted to medical therapeutics, which includes psychotherapy, physical therapy and drug therapy. This is followed by a section in which minor and major surgical procedures are discussed. There is a short section in which prognostic factors are considered. Finally, the appendix includes chapters on such subjects as establishing an office practice, glossary of hematology, occupational hazards and rehabilitation and convalescent care.

These volumes do accomplish the avowed purpose of the author; they will prove to be of distinct value to the general practitioner who desires a readily accessible and compact review of the various branches of medicine. Sufficient information is given in a manner that will enable the practitioner to evaluate more adequately the problems presented by his patients and to become more expert in the methods of diagnosis.

Hygiene: A Textbook for College Students on Physical and Mental Health from Personal and Public Aspects. By Florence L. Meredith, B.Sc., M.D., Professor of Hygiene and Public Health, Tufts College, Boston. Fourth edition. Cloth. Price, $4. Pp. 838, with 155 illustrations. Blakiston Company, 1012 Walnut St., Philadelphia 5, 1946.

This is a complete revision of a widely used and valuable textbook on college hygiene. In the preface the author states as the theme which runs through the book "what health situations exist in the lives of individuals and peoples, what health objectives arise from them, and what action is scientifically appropriate on the part of the layman, especially the college student." With this theme in mind the author presents the usual material on personal and public health in a manner which should arouse the interest of college students in their own health problems and motivate them to seek a solution of such problems. In this edition not only has there been a revision to bring statistical and other material up to date but there has been a complete rearrangement of much of the material. The six parts and forty-nine chapters in the previous edition have been rearranged and expanded into nine parts with fifty-seven chapters. New chapters have been written to give emphasis to some of the major health problems such as heart disease, cancer, rheumatism and allergic conditions. An enlarged and much improved chapter on heredity has been included. Many of the anatomic and other illustrations have been redone in a manner which greatly improves the illustrative material. This is unlike most textbooks on college hygiene in that Dr. Meredith does not separate the discussion of the various aspects of health into personal and public as such but rather combines the personal and public health aspects of all topics as they are discussed. This approach has much to recommend it. One criticism which may be made of this as of former editions is its length. Many instructors feel that a textbook of 800 pages is too long for class use. In some instances also it seems that the detailed anatomic descriptions and terminology are too complex for the average college student and could have been simplified to good advantage. The great improvements which have been made in the revision should make this textbook used even more widely than in the past. It can be recommended for use by college students and others interested in the general field of health.

Textbook of Biochemistry. By Benjamin Harrow, Ph.D., Professor of Chemistry, City College, College of the City of New York, New York. Fourth edition. Cloth. Price, $4.25. Pp. 592, with 144 illustrations. W. B. Saunders Company, W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W. C. 2, 1946.

As the rapid and extensive advances in biologic chemistry necessitate frequent revisions and editions of a textbook in this field, the new edition is highly welcomed. Much of the newer knowledge has been incorporated. Treatment is given to such newer topics as transamination, transmethylation, thiouracil in hyperthyroidism, alloxan diabetes and the antibiotics. No mention, however, is made of the interesting spreading phenomenon which involves hyaluronic acid and the enzyme hyaluronidase. Immunochemistry is inadequately treated. These topics will no doubt receive adequate consideration in the next edition. An appendix has been added; it deals with a variety of topics many of which could have been better discussed in their proper place in the text.

The claim is set forth that more clinical material has been added throughout the book. These additions nevertheless are too meager to be considered a great improvement over the third edition. It is to be hopd that more clinical material will be found in the fifth edition. It is taken for granted that each successive edition is an improvement over the last edition. In this respect Harrow's book has shown consistent improvement.

The paucity of clinical integrations and correlations is not to be taken as adverse criticism: it holds for all the textbooks in biochemistry at present available. Our textbooks in this field seem to be written with an eye to the capturing of the greater buying market which embraces students of agriculture, sanitary engineering, nutrition, dietetics, dentistry and pharmacy, and advanced students in general chemistry or biology. Unless the teaching of biochemistry is permeated with medical implications, as is the teaching of physiology, pharmacology and especially bacteriology and pathology, the subject will continue to stand alone and apart in the medical curriculum. Because of this isolation it yet remains a subject which medical students look on with no too great a show of kindness and as an academic drudgery in which a passing grade must be attained in order to advance from one class into another.

The references at the end of each chapter are excellent. These make a specialty of reviews rather than of individual original papers. Since students carrying a full academic load as a rule are crowded for time and have little opportunity for outside reading, the text could be materially improved by incorporating more of the highlights of these reviews.

The book has many good points to recommend it. The chapters on vitamins and hormones cover the subject well and are interestingly illustrated by pictures of animals and of human beings displaying signs of vitamin deficiency or hormonal inadequacy or excess. Excellent are the chapters dealing with the intermediate metabolism of carbohydrates, fats, lipids and proteins and the chapters dealing with biologic oxidations and biologic detoxications.

The new edition can be profitably placed in the hands of students of medicine and of physicians who wish to keep abreast of the times in the ever expanding field of biochemistry and who wish to make their own integrations between medicine and biochemistry. It is to be remembered that the newer knowledge in the latter field often parallels advances made in the fundamental understanding of the cause of disease and in the application of proper therapeutic procedures.

The Psychology of Adolescence. By Karl C. Garrison, Associate Professor of Education and Psychology, Teachers College of Connecticut, New Britain. Third edition. Cloth. Price, $4.65. Pp. 355, with 22 illustrations. Prentice-Hall, Inc., 70 5th Ave., New York 11, 1946.

This is written primarily for college students, parents and teachers. It is also a textbook for students of adolescent behavior, in which text is supplemented by comprehensive bibliographies. An introductory section defining adolescence and classifying briefly the problems of this age period is followed by a section dealing with physical and mental development, emotional growth and adolescent attitudes and interests. Detailed discussion of personality development during adolescence and adaptation at home, in the school and in the community is presented. Social and sexual development are thoughtfully, if briefly, considered. A final section is directed to guidance of adolescents. Here physical and mental hygiene principles and the prevention of delinquency and of educational and vocational needs are summarized. It is a well written book in which there has been careful selection of the material presented. It can be profitably read by parents, by teachers and by adolescents. It deals with the primarily socially determined problems of behavior, although the author fully recognizes the important biological factors in adolescent behavior and the crucial significance of childhood relationships and training. As a work on the mental hygiene of adolescence it is excellent. The counselor who must deal with the individual adolescent who presents problems reflecting deviations in personality development will require more specific understanding of psychodynamics than are offered in this textbook. The extensive bibliographies are meager in reference to the technical and clinical works in which childhood and adolescent behavior are thus dynamically interpreted.

A Guide for the Tuberculous Patient. By G. S. Erwin, M.D., Medical Superintendent, Liverpool Sanatorium, Frodsham, Cheshire. American edition revised and edited by Henry C. Sweany, M.D., Medical Director of Research, Municipal Tuberculosis Sanatorium, Chicago. Paper. Price, $1.50. Pp. 126. Grune & Stratton, 381 4th Ave., New York 16, 1946.

In both the preface and the introduction the authors call attention to the importance of information on tuberculosis to the patient. This can best be provided by a small volume written with as few scientific words as possible so it can be easily read by patients, regardless of previous education and training. This volume is a fine example of such an accomplishment. The

authors have long been in the field of tuberculosis and are highly respected by the medical profession for their store of information and fine judgment. There are ten chapters on such subjects as the cause of tuberculosis, diagnosis, complications, treatment, public health aspects and nonpulmonary tuberculous lesions. The patient is told practically everything that he needs to know in order to cooperate to his best advantage with professional workers. Because of differences in such factors as the prevalence of tuberculosis in various parts of the world or even in the same country, it is impossible to make statements concerning phases of the disease that are applicable everywhere. For example, the assertion that primary infection usually occurs in childhood, while applicable to many nations, does not apply to vast areas of the United States, where far more infections occur among adults than among children because of the low infection attack rate and the many more years devoted to adult life than to childhood. In addition to discussions of the fundamentals of tuberculosis, the authors have manifested excellent judgment in the presentation of subjects of special current interest, such as mass surveys, vaccination, aviation, life insurance, tuberculosis and childbearing, and streptomycin. Every physician who treats tuberculosis will find this book of distinct value to his patients.

Pasteur. By Henri Mondor. Paper. Price, 150 francs. Pp. 189, with illustrations. Éditions Corrêa & Cie, 166 Boulevard du Montparnasse, Paris, 1945.

The physician interested in Pasteur may wish to include this recent biography in his collection, though it offers little that is new. The well known facts of his life have been presented in much more interesting manner by other biographers. The personal history, the human side of Pasteur, the significance of family and religious and academic training are hardly touched on. Only the dogged persistence of Pasteur in the face of apparent failure and painful rebuke is emphasized, as well it should be, for it was the basis of Pasteur's ultimate success. Pasteur was not an unusually good student; he was by no means a genius in the usual implication of sudden flashes of inspiration and intuitive penetration of dark fields. Pasteur's great contributions follow a clearly defined and logical course of reasoning in an orderly steplike fashion, and each step was carefully built up by hard work and tenacious adherence to a mental pattern. Pasteur was a far greater man than the rather colorless figure that Henri Mondor has presented to us in this book.

Oral Diagnosis and Treatment: A Textbook for Students and Practitioners of Dentistry and Medicine. By Samuel Charles Miller, D.D.S., F.A.C.D., Associate Professor in Charge of the Periodontia Department, New York University College of Dentistry, New York, and Thirty Contributors. With an Introduction by Allen T. Newman, M.S., D.D.S. Second edition. Fabrikoid. Price, $10. Pp. 903, with 613 illustrations. Blakiston Company, 1012 Walnut St., Philadelphia 5, 1946.

This is a book of unusual value and interest to both practitioners and students of medicine and dentistry. Few physicians realize the number of serious systemic conditions that have their first clinical manifestations in the oral cavity, for instance measles, scarlet fever, diabetes, blood dyscrasias, including pernicious anemia, metallic poisoning and many of the occupational diseases. The thirty contributors have been selected because of their ability to present the material of their respective chapters. The material in each chapter is so arranged as to make it easily available for reference. Each chapter is supplied with a bibliography and suggested reading.

The chapters of special interest to the physician and medical student are chapter 1, on the science of oral diagnosis, by Samuel Charles Miller, D.D.S.; chapter 2, on head pain, by R. J. Behan, M.D., assisted by B. J. Johnston Jr., M.D.; chapter 3, on pain of dental origin, by John Oppie McCall, D.D.S.; chapter 6, on diseases of the oral mucous membranes exclusive of neoplasms, by George M. MacKee, M.D., and Anthony C. Cipollaro, M.D.; chapter 20, on tumors of the oral mucous membrane, by George M. MacKee, M.D., and Anthony C. Cipollaro, M.D.; chapter 21, on mouth infections and their relation to systemic disease, by Harold Stearns Vaughan, M.D., D.D.S., and Louis R. Burman, Ph.G., D.D.S., and chapter 24, on oral manifestation of endocrine dysfunctions, by William Wolf, Ph.D., M.D. Of special interest at this time are the chapters on oral and dental diseases of occupational origin, by J. A. Salzmann, D.D.S., and on aerodontia (aviation dentistry), by Lieut. Col. James M. Mullen, D.D.S., Dental Corps, Army of the United States.

The book deserves a place in the reference library of every physician and dentist who is called in consultation.

Practical Malariology. Prepared under the Auspices of the Division of Medical Sciences of the National Research Council by Paul F. Russell, M.D., M.P.H., Colonel, M. C., A. U. S., Parasitology Division, the Army Medical School, Luther S. West, Ph.D., Head of Biology Department, Northern Michigan College of Education, Marquette, Michigan, and Reginald D. Manwell, Sc.D., Professor of Zoology, Syracuse University, New York. Foreword by Raymond B. Fosdick, President of The Rockefeller Foundation. Cloth. Price, $8. Pp. 684, with 238 illustrations. W. B. Saunders Company, W. Washington Sq., Philadelphia 5; 7 Grape St. Shaftesbury Ave., London W. C. 2, 1946.

Dr. Russell had a distinguished career as field director in malaria for the Rockefeller Foundation before he became head of the malaria section of the Office of the Surgeon General of the United States Army during the recent war. While in the Army, Dr. Russell served for a time as chief malariologist for the American forces in North Africa and Italy. Thus his experience in malaria control has been unusually extensive.

As stated in the preface, the subject matter of the volume has been derived mainly from the experience of the authors. Their aim has been to provide information of a practical nature for day to day use in the clinic or in the field. Having appeared after the war, the book is designed primarily for civilian rather than for military use. The restrictions which were imposed during the war have since been relaxed, so that it has been possible for the authors to discuss all the important new developments in malariology.

The text is divided into six sections, on the parasite, the mosquito, the man, the community, prophylaxis and control, and therapeutic malaria. An appendix contains an extensive key to Anophelines of the world, useful tables of equivalents and a voluminous index.

The historical introduction stimulates interest and provides perspective. The sections dealing with the parasite present known facts clearly, simply and systematically. A valuable feature of these sections is that gaps in knowledge which need to be filled are pointed out.

The colored illustrations of plasmodia are excellent. Their value is increased by the numbered documentation which explains them and which is made possible without injuring the plate by the use of transparent interleaves. Some of the halftones in these sections have a blurred appearance.

The section on laboratory and field technic is informative and useful. Recent work on the cultivation of malaria parasites is described. Some of the information contained in the sections which deal with the taxonomy, life cycles and bionomics of malaria transmitting mosquitoes has been presented in convenient tabular form. The halftones and diagrams of this section are excellent. The symptomatology and the treatment of malaria are succinctly and clearly presented. The epidemiology and the methods of controlling malaria are dealt with in extenso. It is especially on these aspects of malariology that Dr. Russell's experience qualifies him to speak with authority. The sections are well illustrated with halftones and diagrams.

Although presented by the authors in the modest guise of a practical manual, this volume is also an excellent book of reference. The subject matter throughout is presented clearly and concisely, and the approach is scholarly.

Operative Surgery. By George Bankoff, M.D., D.Ch., F.R.F.P.S. Fabrikoid. Price, £3 3s. Pp. 416, with 479 illustrations. Medical Publications, Ltd. 47 Princes Gate, London, S. W. 7, 1946.

This ambitious little book attempts to cover almost all the fields of surgery. In this wise it is a typical product of the English, who are given to publish handbooks, some of which are excellent. Few surgeons in this country would feel that a work of this nature would prove of value either for teaching or for advanced study. Typically much of it is anatomic, and little space is devoted to physiology, indications or complications. The illustrations are excellent and numerous. Descriptions of technics are limited but concise and well expressed. There is much common sense in its content. This volume can be of use as a basis for a review of surgery.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TREATMENT OF AMEBIASIS

To the Editor:—**What is the present practice in the United States in regard to (1) treatment of patients with dysentery or other symptoms of amebiasis, (2) treatment of amebiasis during pregnancy, (3) treatment of persons passing cysts but without symptoms or other evidence of ill health and (4) the isolation of patients and disposal of excreta?**

R. I. MacDonald, M.D., Toronto, Ont.

ANSWER.—1. The drugs considered to be most useful in the treatment of amebiasis include chiniofon, diodoquin, vioform, carbarsone and emetine hydrochloride. The treatment usually recommended varies, depending on a number of conditions such as the severity of the symptoms, the general condition and age of the patient and previous treatment. In adults with acute amebic dysentery or amebiasis causing severe diarrhea, one course of emetine hydrochloride followed by one or more courses of chiniofon is commonly recommended. Patients with definite but less severe symptoms may be treated with one of the amebicidal drugs other than emetine hydrochloride. Chiniofon or diodoquin is perhaps the most frequently recommended for this purpose.

A course of emetine hydrochloride consists of 0.065 Gm. (1 grain of the drug) given subcutaneously or intramuscularly once a day for seven to ten days. The patient is kept at bed rest throughout the period of emetine administration. A course of chiniofon consists of 1 Gm. of the drug by mouth three to four times daily for eight to ten days, and this is usually repeated after one to two weeks. Additional courses of chiniofon may be given if evidence of amebic infection persists, or courses of diodoquin or carbarsone may be substituted. Modifications of this routine are indicated in certain cases, depending on the response, both therapeutic and toxic. Toxic symptoms due to emetine in adults are uncommon when (1) the patient is at bed rest, (2) the total dose of emetine hydrochloride administered in one course is 0.780 Gm. (12 grains) or less and (3) the course is not repeated before six months. Toxic symptoms due to chiniofon are not serious. Diarrhea or an exacerbation of diarrhea occurs commonly, but this is not severe usually and promptly subsides when the drug is discontinued on completion of the course.

2. One of the iodine-containing amebicidal drugs such as chiniofon or diodoquin is considered the treatment of choice. The use of emetine hydrochloride during pregnancy is discouraged. In fact, it is considered by some to be contraindicated. It is not definitely known that emetine has an unfavorable effect on the fetus or that it favors abortion, but that it might have such an effect seems likely in view of the fact that emetine is a known protoplasmic poison. It would therefore be difficult to justify the use of emetine hydrochloride during pregnancy should an abortion follow, even though the abortion might well have been a spontaneous one. In a pregnant woman seriously ill with amebic dysentery who fails to respond to other drugs, the benefits anticipated from emetine hydrochloride might seem to outweigh the risks sufficiently to warrant its use. Such cases, however, must be rare.

3. Chiniofon, vioform and diodoquin are frequently used in the treatment of asymptomatic amebiasis. Chiniofon may be used in courses as outlined. Vioform 0.25 Gm. taken by mouth three times daily for ten days constitutes one course, which may be repeated after one to two weeks. The recommended dose of diodoquin is two to three tablets of 0.21 Gm. (3½ grains) each three times daily for twenty days. Carbarsone also may be used. Although it is less toxic than other amebicidal arsenicals, severe toxic reactions have occurred, and for this reason it is not the drug of choice for the first course of therapy.

4. Hospitalized patients, by law in most states, are isolated and the stools disposed of as in cases of typhoid. On the other hand, most patients with amebiasis are probably ambulatory during treatment. In the latter event the patient is not permitted to engage in occupations involving the handling of food for public consumption. This, of course, does not prevent him from handling food consumed by his family or friends. It then becomes the function of the physician to instruct the patient concerning personal hygienic measures.

Reference:

Craig, C. F., in Portis, S. A.: Diseases of the Digestive System, Philadelphia, Lea & Febiger, 1944.

MANNITOL HEXANITRATE FOR HYPERTENSION

To the Editor:—**Please discuss the use of mannitol hexanitrate in the treatment of hypertension.**

M.D., Connecticut.

ANSWER.—Mannitol hexanitrate is a useful drug in the management of hypertensive disease. It is a vasodilator belonging chemically to the series of alkyl nitrates, which includes glyceryl trinitrate and erythroltetranitrate, but pharmacologically to the group of nitrites which includes sodium nitrite and amyl nitrite. Mannitol hexanitrate has a more prolonged effect than either of the other two alkyl nitrates; the arterial tone remains reduced for five or six hours.

Continued administration of any or all of the alkyl nitrates leads to increasing tolerance. Tolerance to glyceryl trinitrate is acquired quickly. Abstention from the drug for a few days usually restores responsiveness. Apparently the nitrites act directly on the arteriolar musculature. The nitrite ion is extraordinarily unstable. The normal concentration of nitrite ions in the blood stream is about 1 microgram per hundred cubic centimeters of blood. This is increased to 2 or 3 micrograms by all the alkyl nitrates and by sodium nitrite, amyl nitrite and bismuth subnitrate. However, one peculiarity which remains unexplained is the great variability in effectiveness of the various compounds. Approximately the same degree of fall in arterial tension follows the administration of 1 mg. of glyceryl trinitrate, 40 mg. of erythrol tetranitrate, 50 mg. of sodium nitrite or 100 mg. of amyl nitrite. These differences are not explained by differences in NO_2 ion content.

The usefulness of vasodilator drugs in hypertensive disease is limited by several factors. In the later phases of the disorder, when considerable arteriolar sclerosis exists, they are nearly valueless and may be detrimental. In hypertensive states due to arteriolar hypertonicity prior to the sclerotic changes they are most valuable when no active vasopressor influences are operative and the hypertension is largely due to the intrinsic self-perpetuating character of the malady. The degree of arteriolar relaxability of the arterioles in any given case of hypertension may be quickly determined by the amyl nitrite test (Stieglitz, E. J.: Evaluation of the Prognosis in Arterial Hypertension, *Arch. Int. Med.* **46**:227 [Aug.] 1930). The response of the blood pressure to amyl nitrite is an excellent guide to what may be expected from any of the several vasodilators mentioned.

Toxic reactions from the alkyl nitrates are rare, though about 25 per cent of hypertensive patients exhibit poor tolerance and complain of headache for an hour or two after ingestion of these drugs. Sometimes tolerance is acquired by persisting in the treatment despite the cephalalgia but it is wiser to reduce the dosage and then increase it very slowly. The nitrates are distinctly safer and less toxic than potassium thiocyanate.

TRANSMISSION OF BRUCELLA IN MILK

To the Editor:—**The county agricultural agents and the veterinarians quote Dr. Huddleson as stating that undulant fever is transmitted only by direct contact with Bang's infected cattle or meat and not by drinking the infected cow's milk. In support of this statement they point to the lack of any cases of undulant fever that cannot be traced to such contact despite the large consumption of raw milk from these cows. In my epidemiologic investigation of over 20 cases in this area I have found this to be true. However, I am in accord with most physicians who hold a contrary view. Has Brucella abortus been isolated from milk? Have experimental animals contracted the disease after ingesting such milk? Is pasteurized milk with a plate count of 100,000 per cubic centimeter considered as safe as raw milk with a count of 10,000 or less? In other words, is pasteurized milk free from all pathogenic bacteria regardless of the size of the plate count?**

M.D., Michigan.

ANSWER.—The veterinarians and county agents are apparently misquoting Dr. Huddleson. In the 1943 edition of Huddleson's "Brucellosis in Man and Animals," pages 71-73, the discussion of ports of entry of Brucella in relation to occupation, varieties of the micro-organism and reported regional experiences is followed by this statement: "In our opinion it seems probable that in general the greater number of human infections are acquired through the ingestion of the organism."

Brucella abortus has been isolated frequently from milk. Several well documented milk borne outbreaks of human brucellosis caused by the porcine variety are illustrative of the nonoccupational mode of transmission to man of the less virulent and epidemiologically less explosive bovine variety (Beattie, C. P., and Rice, R. M.: Undulant Fever Due to Brucella of the Porcine Type, THE JOURNAL, May 19, 1934, p. 1670. Horning, B. G.: Outbreak of Undulant Fever Due to Brucella Suis, *ibid.*, Dec. 14, 1935, p. 1978).

From the point of view of protection against brucellosis, pasteurized milk with a high plate count is safer than any raw milk. Brucella organisms are readily killed by pasteurization.

CONGENITAL MEGACOLON

To the Editor:—What is the expectancy for a patient aged 17 years with a known diagnosis for six years of Hirschsprung's disease? At present the disease is under reasonable control. Also I would appreciate, if available, a suggestion as to the present regimen, surgical and medical, for this syndrome. In my practice it seems that I have seen only 1 instance in patients other than children.

M.D., Michigan.

ANSWER.—The frequency of congenital megacolon (Hirschsprung's disease) seems to be inversally proportional to the age of an individual. Its most common occurrence is among children, and usually the child has sought medical aid before he reaches the second decade of life. A few, however, have little or no objective complaints except abdominal enlargement and can go on to the middle years of life without much of any trouble. People with advanced megacolon after the age of 40, seemingly in good health, have been encountered. This is exceptional.

The advisability of medical or surgical treatment in these cases will rest largely on the state of advancement of the megacolon. In the mild or moderate cases anticonstipation programs together with the use of drugs affecting the sympathetic and parasympathetic nervous systems have helped. In some of these and the somewhat more advanced cases in children, sympathectomy has been performed with variable results. The treatment of choice seems to be subtotal colectomy.

POSSIBLE SUBACUTE COMBINED DEGENERATION

To the Editor:—A diagnosis of subacute combined sclerosis was established one year ago in a man aged 68 on the basis of a history of tingling and numbness in the hands, neurologic findings, a low red cell count not typical of pernicious anemia, and an achlorhydria. He was given liver extract, reticulogen 1 cc. weekly, diluted hydrochloric acid twenty drops with meals, and a vitamin B complex capsule. On this therapy he improved. At the present time, however, he complains of generalized weakness and loss of strength. The patient weighs 129 pounds (58.5 Kg., no change in several years), his height is 5 feet 7 inches (170 cm.), he appears healthy, his tongue is pale and smooth with tortuous venules on the under surface and petechial-like spotting of the mucous membrane, there is a systolic heart murmur, the blood pressure is 160/90, the liver edge is palpable two fingerbreadths below the costal margin and not tender, there is a loss of biceps, triceps, patellar and achilles tendon reflexes, the abdominal reflexes are questionable, the cremasteric reflexes are active, there is atrophy of the small muscles of both hands, fibrillary twitching has existed in the hands for three years, vibratory sense is reduced, heat, pain and touch sensation is normal, the patient is unable to distinguish small objects placed in the hands, he experiences difficulty in executing the finer movements of the hands, there is loss of position sense of the toes and he has a tendency to drag the left foot in walking. Laboratory examination reveals the urine normal, creatinine excretion 0.978 Gm. in twenty-four hours, erythrocytes 4,750,000 (same counts since 1940), hemoglobin 90 Gm. per hundred cubic centimeters (Sahli), color index 0.92, reticulocytes 0, megaloblasts 0, leukocytes 9,100, of which polymorphonuclears were 62 per cent, stabs 4 per cent, lymphocytes 32 per cent, monocytes 3 per cent and eosinophils 3 per cent, sedimentation rate (Wintrobe) 0, Price-Jones curve single peak average 7.3 microns. Marrow studies were not made. Blood and spinal fluid serologic reactions for syphilis were negative, spinal fluid Pandy test was negative, colloidal gold curve was 2233221111. Diagnoses of atypical pernicious anemia and progressive muscular atrophy have been considered. Evidence against syphilis includes lack of history or scar of primary lesion, normal pupils and negative serologic tests. Please discuss the diagnosis and treatment. Is the increased tortuosity of the venules on the under surface of the tongue common? Does folic acid influence neurologic changes in typical pernicious anemia?

M.D., California.

ANSWER.—The neurologic findings of the patient described in the query are not typical of the subacute combined degeneration associated with pernicious anemia. Against this diagnosis are the weakness of one foot, the loss of the biceps and triceps reflexes, the presence of astereognosis and the abnormal colloidal gold curve. Atrophy of the small muscles of the hand and fibrillary twitching are not unusual in old age in the absence of neurologic disease. A definite neurologic diagnosis cannot be made from the findings described.

Achlorhydria is not diagnostic, as this occurs in more than 20 per cent of persons in this age group. Tortuosity of the venules under the tongue is common and has no relation to pernicious anemia.

It is stated that the red cell count was low one year before. A rapid response of the count to parenteral treatment with liver would favor the diagnosis of pernicious anemia. Knowledge of the course of neurologic symptoms and signs during liver therapy would also be helpful. In pernicious anemia the neural symptoms would either improve or remain stationary; they should not progress. As this diagnosis cannot be excluded, parenteral liver therapy should be continued. Fifteen units every two weeks should be adequate.

Preliminary observations indicate that the neurologic changes in some cases of pernicious anemia are not controlled by folic acid.

REMOVAL OF CALCIUM

To the Editor:—Is there any method to reduce the calcium content of the body?

Charles C. Morrison, M.D., Bar Harbor, Maine.

ANSWER.—It is presumed that the inquiry refers to a reduction in the calcium content of body fluids. A second possibility would be the reduction of the calcium content of soft tissues that have become calcified.

Hypercalcemia most commonly results from the ingestion of large amounts of vitamin D, from hyperparathyroidism, from the rapid destruction of bone as by a lytic bone tumor, or from the immobilization of a part of the skeleton. In the first instance, stopping the ingestion of the hypercalcemic sterol, placing the patient on a diet low in calcium and maintaining a high water intake will lead to a decrease in serum calcium. This decrease may be rapid and striking if the patient has been on a high calcium intake, as is frequently the case. In hyperparathyroidism, reducing the intake of calcium may cause a slight reduction in serum calcium although no decided effect will result unless the hyperfunctioning tissue is removed. The administration of soluble phosphates has been suggested as a means of lowering the serum calcium in hypercalcemia. This procedure seems unwise, as it may contribute to metastatic calcification and the impairment of kidney function. A return of weight bearing to the formerly immobilized part of the skeleton will result in a return of the serum calcium to normal.

Reducing the calcium content of soft tissues is frequently impossible if the deposits occur in the presence of a normal calcium content of the body fluids. If the calcification of soft tissue occurs in the presence of hypercalcemia, spontaneous mobilization of the soft tissue deposits is likely to occur when the underlying cause of the hypercalcemia has been removed (Freeman, Rhoads and Yeager: Toxic Manifestations Associated with Prolonged Ertron Ingestion, THE JOURNAL, Jan. 26, 1946, p. 197. Danowski, Winkler and Peters: *Ann. Int. Med.* **23**:22 [July] 1945). Parathyroid, citrates and various acidifying salts such as ammonium chloride will mobilize calcium from the skeleton, but their effect is on the skeleton as a whole without regard to any particular locality. These measures would have little if any effect on deposits of calcium in the soft tissues.

Theoretically it should be possible to hasten the rate of reduction of an elevated serum calcium by the oral administration of unabsorbable substances that would combine with the calcium of food and with the calcium contained in the gastrointestinal secretions. Actually, no substance suitable for this purpose has yet been demonstrated.

RECURRENT ERYSIPELAS

To the Editor:—A patient aged 56 years has had erysipelas eight times in the last two years. The attacks occur on either the left or the right lower part of the leg. The acute stage responds readily to the sulfonamides and to penicillin. What can I do to prevent the frequent recurrences?

Harry Grodzicker, M.D., Brooklyn.

ANSWER.—Since erysipelas is a disease of the skin and mucous membranes due to hemolytic streptococci, it is assumed that in the case cited this micro-organism has been identified as the etiologic agent. If not, attempts should be made to isolate the organisms from the tissues or blood during an acute attack. There are two possibilities to explain the recurrent attacks. Repeated episodes of erysipelas have been explained on the basis of an allergic reaction, that is, the presence of tissue which is hypersensitive to a product or products of the hemolytic streptococcus. During the acute attack the inflamed tissues usually do not contain viable organisms, but the causative factor is some distant focus or foci harboring hemolytic streptocicci. Therefore, in the case under discussion it would be well to search for a focus such as a chronic sinusitis. Eradication of the primary focus is essential for the prevention of recurrent attacks, and this may necessitate surgical intervention. Desensitization with the hemolytic streptococcus, using either a vaccine or exotoxin prepared from the organisms, has been unsuccessful. A second possibility for explaining the genesis of the attacks is the presence of chronic lymphedema of the legs with localizing of micro-organisms in the tissues. The edema may be associated with varicose veins, chronic congestive heart failure, obesity and, finally, thrombophlebitis. Congestion of the legs associated with inflammation and infection leads to more fibrosis of the tissues and an increase in the lymphedema. Such a sequence of events is probably present in filariasis, where it is known that hemolytic streptococci may localize in the tissues of the legs. In the case under discussion, recurrent attacks of thrombophlebitis should be seriously considered. If this is the cause of the repeated attacks, treatment may require surgical ligation of the veins; or anticoagulant therapy with heparin, the administration of penicillin and vasodilation with local heat over a period of three to four weeks may be utilized.

DOSAGE SCHEDULE FOR QUINIDINE

To the Editor:—What is the excretion rate of quinidine sulfate when employed in the usual dosage of 100 to 200 mg? It is my impression that the drug when so given (orally) is completely excreted within two to three hours, so that, in order to effect control of cardiac arrhythmia, a less frequent administration would be much less effective. The question is prompted by the prevailing custom, at my hospital, of ordering administration every four hours or three times a day. M.D., New York.

ANSWER.—The question of the optimal frequency of administration of quinidine has occasioned considerable discussion. Electrocardiographic studies during quinidine administration have thrown considerable light on the problem. Such studies indicate that the maximal effect of a single oral dose is obtained from one and one-half to three hours after administration and is maintained at a slightly lower degree for three to five hours following, which it decreases rather rapidly. Subsequent doses lead to a summation of effects; hence, if too large doses are given at too frequent intervals, cumulative poisoning may develop. These findings would indicate that in acute conditions the drug should be administered at one to two hour intervals until the maximal effect is developed. For chronic auricular fibrillation and in the prophylactic treatment of paroxysmal arrhythmias, the conventional four hour schedule should be adequate. The average dose is usually considered to be 200 to 400 mg. rather than 100 to 200 mg.

References:

Weisman, S. A.: Studies on the Time Required for the Elimination of Quinidine from the Heart and Other Organs, *Am. Heart J.* **20**: 21 (July) 1940.

Sagall, E. L.; Horn, C. D., and Riseman, J. E. F.: Studies on the Action of Quinidine in Man: Measurement of the Speed and Duration of the Effect Following Oral and Intramuscular Administration, *Arch. Int. Med.* **71**: 460 (April) 1943.

PROGRESSIVE BULBAR PALSY

To the Editor:—What, if any, specific therapy is there for the treatment of progressive bulbar palsy? Sidney A. Chait, M.D., Torrington, Conn.

ANSWER.—Progressive bulbar palsy is a rare disease in which the anterior horn cells of the bulb have degenerated. Death usually results in a period of six months to five years—mostly after two years. There is no known efficacious treatment. Rarely one sees a case that has all the manifestations of progressive bulbar palsy in which there occurs a period of arrest and the patient recovers. Every patient should have the benefit of the following treatment: 150 mg. of thiamine hydrochloride hypodermically three times a week for five weeks, 25 minims (1.5 cc.) of whole wheat germ oil three times daily for four weeks, atropine sulfate $\frac{1}{120}$ grain (0.54 mg.) for sialorrhea and a diet consisting of 50 per cent liquids of high caloric value.

NICOTINIC ACID FOR HEADACHE

To the Editor:—Please give the detailed technic of the intravenous injection of niacin for headache. S. Joe McKinsey, M.D., McAllen, Texas.

ANSWER.—Technics differ in the intravenous administration of niacin for headache. Atkinson, in the treatment of migraine, prescribes a course of injections followed by oral maintenance dosage, while Goldzieher and Popkin, in treating various types of headache, recommend the administration of 100 mg. of nicotinic acid or its equivalent as the sodium salt at the outset of each attack. The method recommended by Atkinson is as follows: First give an intramuscular injection of 25 to 35 mg. of nicotinic acid to determine by the extent of the flush reaction the individual tolerance of the patient. (It should be stated that many workers regard the flush reaction as valueless.) Estimating dosage from this reaction, Atkinson gives a series of six or eight intravenous injections, starting with 20 to 30 mg. and raising the dosage by daily increments of 5 mg. to a level of 50 mg. or such lower limit of tolerance as may supervene. After this course of intravenous injections the patient is taught to give himself intramuscular injections of 25 to 50 mg. at daily or thrice weekly intervals as indicated by symptoms or experience. At the same time tablets (50 to 150 mg. a day) are taken. Depending on the response to treatment, the patient is ". . . weaned from injections and kept on a maintenance dose by mouth."

References:

Atkinson, Miles: Migraine Headache: Some Clinical Observations on the Vascular Mechanism and Its Control, *Ann. Int. Med.* **21**: 990 (Dec.) 1944.

Goldzieher, J. W., and Popkin, G. L.: Treatment of Headache with Intravenous Sodium Nicotinate, THE JOURNAL, May 11, 1946, p. 103.

ANTIHEMOPHILIC GLOBULIN

To the Editor:—A man aged 22 with hemophilia urgently needs a kidney operation. Is there a new antihemophiliac blood substance which will offer safety in surgery for such patients? What is the name of the product and is it available commercially?

D. D. McRoberts, M.D., Lewiston, Idaho.

ANSWER.—The substance referred to in the query has been isolated from normal blood plasma by workers at the Thorndike Memorial Laboratory of the Boston City Hospital (Lewis and others: *Blood* **1**: 166 [March] 1946). They term this substance "antihemophilic globulin." Single injections of 200 to 400 mg. will reduce the coagulation time of hemophiliac patients to low levels for eight to twelve hours. This work is in the experimental stage, and the material is not available commercially.

For the patient mentioned in the query, 125 to 250 cc. of whole blood or an equivalent amount of fresh plasma should reduce the coagulation time of the blood to almost normal for one to two days. Further blood or plasma may be given as indicated. For local hemostasis, a purified thrombin preparation or fibrin foam may be useful.

ERGONOVINE AND POSTERIOR PITUITARY INJECTION

To the Editor:—After delivery is it compatible to give ergotrate (ergonovine) and pituitrin (posterior pituitary injection) together in the same syringe or should these be given separately?

William F. Chamlee, M.D., Hanford, Calif.

ANSWER.—It is not advisable nor indicated therapeutically to administer ergonovine and posterior pituitary injection in the same syringe. When administered intramuscularly they both exhibit their action in six or seven minutes. Intravenously they take effect almost immediately, in thirty or forty seconds. The action of ergonovine lasts two to four hours, of posterior pituitary injection several minutes. Qualitative differences in the uterine motility are not induced by the two drugs administered intravenously. Therefore it is not necessary to use posterior pituitary injection if ergonovine is administered. In many thousands of patients in a large maternity hospital, ergonovine has proved to be the ideal oxytocic drug because of its uniform effectiveness and the complete absence of any undesirable symptoms.

RESTORATION OF DESTROYED NAIL BED

To the Editor:—Eighteen months ago a 28 year old man tore the right thumb nail about three quarters off. The nail has never grown fast to the anterior three quarters of the nail bed which I believe is replaced by scar tissue. I have considered removing most of the nail, scarifying and then making fairly wide linear incisions through the healthy nail bed forward to the end of the thumb in the hope that this may correct the defect. D. Guilford Dudley, M.D., Endicott, N. Y.

ANSWER.—It is probable that the nail bed was partially destroyed at the time of the original injury. Unfortunately no way is known of securing satisfactory restoration of a destroyed nail bed.

One cannot say dogmatically that the procedure suggested will fail, but there is no logical reason for believing that incisions through the scar will have any helpful effect.

DURATION OF SCROTAL HERNIA

To the Editor:—I have the problem of determining whether an indirect left scrotal hernia was acquired within a period of four months or prior to this period. Is there a method of determining the length of existence of this type of hernia? Angelo J. Gulino, M.D., Plainfield, Conn.

ANSWER.—An accurate method of determining, within a few days or a few weeks, the length of time an indirect scrotal hernia has been present has not been found, although at times the duration may be approximated with a fair degree of accuracy. One of the difficulties lies in the well known fact that some cases of indirect hernia are congenital in origin and may exist as a narrow peritoneal sac with a small neck in the inguinal canal or even in the scrotum for a long time before becoming manifest clinically as a bulging mass in the groin which is accentuated by coughing or straining and is reducible when lying down. This may develop so gradually and be accompanied by so little discomfort that the patient is scarcely conscious of its presence; or it may come on suddenly after a strain or heavy lifting and produce such severe pain that the exact date of its occurrence is easily remembered. In such an event it is fairly easy to determine the duration of the actual herniation. Fairly good evidence also may be gathered at the time of operation, because a thin walled sac might indicate a hernia of recent development, whereas if the sac is a large one and has thick walls and within its lumen one finds adherent omentum or adherent bowel it would speak strongly for a process of much longer duration.